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Rising Pulp Demand May Create Shortage

Possible Wood Pulp Deficiency, Particularly In Unbleached Sulphite and Unbleached Kraft, And That Lower Prices May Not At Once Follow End of European Conflict, Seen By Ossian Anderson.

Possibility of a wood pulp shortage in 1941, particularly of unbleached sulphite and unbleached kraft, resulting from loss of imports from Scandinavia coincident with a rising trend in consumption, and the probability that lower prices may not immediately follow the end of war in Europe, was foreseen by Ossian Anderson, president, Puget Sound Pulp and Timber Company, in a statement answering inquiries arising from the company's annual report for 1940.

In normal years, said Mr. Anderson, pulp-consuming countries import nearly 6,000,000 tons of pulp, of which over 5,000,000 tons are supplied by Sweden, Finland and Norway. The import balance of the United States, Great Britain, Japan and Latin American countries was 4,900,000 tons in the last prewar year for which figures are available. Scandinavian supplies to Great Britain, the Western Hemisphere and the Orient were almost entirely shut off in the last seven months of 1940. With the exception of a small trickle from Finland, continental European markets are the only ones now being supplied by Scandinavia, under German barter methods absorbing about 50% of normal Scandinavian output.

Canada succeeded in increasing its exports in 1940 to 1,068,000 tons from 706,000 tons in 1939; United States exports rose to 480,000 tons from 140,000. These increases, however, made up only about one-seventh of the loss of Scandinavian supplies.

United States consumption, which closely follows the index of industrial activity, established an all-time high at 9,751,000 tons of new pulp in 1940 compared with 8,880,000 tons in 1939. Domestic production of 9,007,000 tons, also a record, compared with 6,993,000 tons in 1939. Simultaneously our imports dropped 801,000 tons and our exports were 340,000 tons higher, 1940 compared with 1939.

Most of the increase in United States production was in self-contained mills and consumed by themselves in the manufacture of paper and board. Converting mills which depend upon pulp manufacturers for their supplies were forced to draw on inventories; stocks on hand were reduced from 342,000 tons in March, 1940, to 202,000 tons in December.

American supply of unbleached sulphite and unbleached kraft is likely to be affected before other grades, according to Mr. Anderson. All grades combined, United States rated capacity about equals domestic consumption, but in unbleached sulphite pulp even capacity production, which has never been achieved, would fall 220,000 tons short of estimated consumption in 1941. In 1940, unbleached sulphite total consumption exceeded domestic production available to the home market by 373,000 tons, of which 158,000 tons came from the now discontinued Scandinavian source.

Even with the return of peace it will be necessary to replace lost shipping tonnage and scour the Atlantic free from mines before resumption of normal shipping volume from Scandinavia at normal freight and insurance rates, which are now six or seven times the prewar level.

Paper Board Assn. Meets May 15

The National Paperboard Association has announced that a membership meeting of the Association will be held at The Homestead, Hot Springs, Va., on May 15-16.

On Thursday, the opening day, a general membership session will be held, followed by a luncheon meeting of the board of directors. On Friday morning the general membership session will be continued.

Golf and many other facilities for recreation will be available. Hotel and pullman reservations may be arranged with George Slosson, Jr., general manager, The Homestead, Hot Springs, Va., or D. A. Sealey, of the New York office of the association at 40 East 41st street. Western members may apply to H. S. Adler, secretary, National Paperboard Association, 80 East Jackson Blvd., Chicago, Ill.

Swedish Pulp Industry Severely Curtailed

Report From International Press Bureau In Stockholm States Exports of Chemical Pulp In 1940 Were Barely Half of Peace-Time Shipments—Experiments Being Made To Find New Uses for Pulp.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., April 7, 1941—A report just received here from the Swedish International Press Bureau in Stockholm contains an interesting review of the pulp industry in Sweden and of the experiments that are being conducted to find new uses for pulp shut off from overseas markets. It is stated that in 1940 the quantity of chemical pulp exported by Sweden was barely one half of the normal export quantity in peacetime. In making this statement Torsten Hernod, managing director of Sweden's largest pulp and timber concern, the Swedish Pulp Company, says that normally about 50% of the Swedish exports of chemical pulp goes to the U. S. A., while Great Britain takes about 20%.

In 1940 these exports could be maintained, to a certain extent and under the greatest difficulties, only during the winter months up to April 9. Considering the restricted supply of tonnage, exceptional cold and ice difficulties, as well as other hindrances, it must be said, this authority emphasizes, that the physical limit of what it was possible to ship, under the conditions prevailing during the period in question, was practically attained.

Pulp Outlet Closed

On the date mentioned the institution of the North Sea blockade closed the westward outlet for Swedish pulp. The will to find ways out was not paralyzed, however. The war created an increased demand on the Continent, and exports in that direction increased as time went on. The Swedish chemical pulp trade has also attempted to adapt its production as far as possible to the home requirements created by the war. The production of pulp for cattle-feed and of sulphite spirit has thus been coordinated. The Swedish pulp experts have developed methods, whereby it is possible to produce a pulp suitable for cattle food, while simultaneously a maximum quantity of sulphite spirit is obtained.

Mr. Hernod also points out that the use of staple fibre by the Swedish textile trade is bound to increase very considerably if the overseas markets continue to be shut off, with resultant increase in the consumption of chemical pulp.

Tall Oil Used for Soap Making

Another product mentioned which is of importance under the circumstances is "tall"-oil produced from liquid resin—a by-product obtained at sulphate pulp factories. From this "tall"-oil a satisfactory washing soap can be produced. A not inconsiderable part of Sweden's soap requirements can be covered in this way, the writer states.

The timber felling for sawing and pulp manufacture last winter was below that of the preceding year, but this was made up for by very extensive cutting of fuel wood. The two are not commensurate, however, inasmuch as the firewood is mostly taken from timber which has little or no "root value". A great deal of this goes to the charcoal production for motor fuel.

Swedish Pulp Situation Dark

"It goes without saying," the author continues, "that we cannot expect to attain the same export quantities while we are shut off from overseas markets as in peace time, but we do not on the other hand apprehend a total stagnation as things are at present. But to this moderately hopeful view must be added, that the situation is dark enough for the Swedish pulp industry, being shut off from patrons and friends across the seas. We are greatly anxious over the consequences of this situation and our thoughts are ever concerned with the possibility of our authorities finding some way out, in the first place of raising the export blockade as far as neutral overseas countries are concerned." It seems hardly possible, Mr. Hernod finally says in his report, that the belligerents can have any interest in stopping the Swedish export of pulp—a trade that is of such vital importance to Sweden—to such transoceanic countries.

B. C. Paper Valued at $22,971,000

Going to more than 40 countries in the world, British Columbia pulp and paper products reached a value of $22,971,000 in 1940, compared with $16,191,000 in the previous year, it was reported recently by the Provincial Forest Service. Total production included 262,144 tons of newsprint, 68,428 tons of other papers, and 123,000 tons of raw pulp shipped in that form.

With markets steady and prices firm, the gains in manufacture were consistent throughout the first three quarters of the year, with the industry as a whole operating at 90 per cent of plant capacity. Increased markets in the United States, more buying of paper products within Canada, and steady exports to all British destinations featured the trend of the year, official reports indicated.

Newsprint production at 262,144 tons, compared with 216,542 tons, the output in 1939. Wrapping and other papers amounted to 68,428 tons, compared with 50,870 tons in the year before. In all 315,000 tons of pulp were turned into paper, as against 249,000 tons in the previous year.

Shipments of raw pulp, mostly to destinations on this continent, amounted to 123,000 tons compared with 82,500 tons in the 12 preceding months. Newsprint production was 30,000 tons in excess of the ten year average, fixed prices prevailing for the product.

All pulp and paper products, with a value of $22,971,000, contributed to gross forest products values of the year reported at $102,804,000 as now ascertained. That made the year 1940 the peak year in British Columbia's forest output, comparing with $94,000,000 in 1928, and $93,000,00 in 1929, provincial officials said.

Paper Mill Employment Rises 4.4 Per Cent

Wisconsin Industrial Commission Reports Increased Production And Employment In First Quarter With Average Wage 65.6 Cents Per Hour — Converting Plants Also Report Gains — Other News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., April 7, 1941—Predictions that production of pulp, paper and paper products would be on the ascendancy for the first quarter of 1941 is shown in the emloyment trends reported for February by the Wisconsin Industrial Commission.

Wisconsin mills reported 22,000 wage earners in February, against 21,700 in January, and 21,100 in February of last year. This represents a gain of 1.5% for the month, and 4.4% over a year ago. Weekly estimated payrolls went up $17,000, from $590,000 in January to $607,000 in February, as compared with $535,000 in February a year ago. The fact that wages have strengthened is shown by greater increases in percentage of payrolls than number of workers. Weekly wages are up 3% for February, and 13.6% over a year ago. The average hourly rate is now 65.6 cents, the workers are putting in an average of 42.1 hours per week, and are receiving an average of $27.62 per week.

Converting Plant Employment Up

Scales are a trifle lower in the Milwaukee metropolitan area, devoted largely to carton and converting plants. Workers are receiving 63.5 cents per hour average for 40.5 hours per week, and total weekly average pay of $25.70. Nineteen plants reporting have 1,894 workers, an increase of 0.9% in February over January. Total weekly payrolls are $48,669, up 2% from January.

Although printing, publishing and allied industries in the state show the same number of workers for January and February, 9,700, payrolls are up 2% for the month and 4.7% from a year ago. Total weekly payrolls rose from $319,000 in February a year ago to $327,000 in January and $334,000 in February. Weekly earnings average $34.60 for a work week of 40.2 hours, with an average hourly rate of 86.1 cents.

More Paper Mill Power Sought

Increased sources of power for paper mills and other industries of the Fox River Valley are sought in applications placed before the Wisconsin Public Service Commission at Madison, Wis., by the Wisconsin Michigan Power Company, Appleton, Wis., and the Wisconsin Public Service Corporation, Green Bay, Wis. The two utilities intend to interconnect their transmission lines through expenditures of about $204,000, principally for transformers. The connection would be made at Green Bay of the Wisconsin Michigan's 132,000 volt line with a 66,000 volt line of the Wisconsin Public Service System.

S. F. Shattuck Delivers Address

Growth of personnel administration in the Kimberly-Clark Corporation, Neenah, Wis., was described by S. F. Shattuck, vice-president, in an address last week before the Rotary club of Neenah. Today, Mr. Shattuck pointed out, there are on the payrolls of the general office and mills 46 men and women, all of whose time is devoted to projects, interviews and programs having to do with hiring, placement, adjustment and growth of individual people. The vacation program for hourly workers was also described. A total of 715 persons in the Lakeview and Badger-Globe mills at Neenah will, during 1941, take 981 weeks of vacation at a direct wage of $20,282. Indirect costs will bring this total to approximately $29,582, which must be added to the cost of the product.

May Use Pulp for Cork

Difficulty of obtaining cork for shells produced by the U. S. Navy has led to an appeal to the United States Forest Products Laboratory at Madison, Wis., to develop a substitute. It is reported the laboratory has been able to make a suitable substitute out of wood pulp. The navy has asked that molds and dies be prepared so a number of specimens can be put into shells for actual shooting tests.

West-Moore Nuptials

Clarence John West, Jr. and Miss Elizabeth Moore, both of Appleton, Wis., were married Friday evening, April 4, at the home of the bride's parents, Dr. and Mrs. Luther H. Moore. The ceremony was performed by the Rev. William J. Spicer, rector of All Saints Episcopal Church. Mr. West is a son of Dr. and Mrs. C. J. West. Dr. West is editor of the Institute of Paper Chemistry. The bridegroom studied at Virginia Polytechnical Institute, Blackburg, Va., and George Washington University, Washington, D. C., and is employed with Kimberly-Clark Corporation at the sulphite mill at Kimberly, Wis.

Daughter of G. D. Muggleton Engaged

Mr. and Mrs. Gerald D. Muggleton of Appleton, Wis., announced the engagement last week of their daughter, Betty, to Jere Patterson of Chicago, Ill. The wedding will take place late in April. Mr. Muggleton is general manager of the Combined Locks Paper Company.

Culp-Toll Engagement

The engagement also was announced last week of Fred E. Culp of Wisconsin Rapids, Wis., and Miss Doris Toll of Appleton, Wis. Mr. Culp is a graduate of Ohio State University and the Institute of Paper Chemistry of Appleton, Wis., and is employed as a chemical engineer with the Consolidated Water Power and Paper Company.

Wyoming Mills Move Boston Office

BOSTON, Mass., April 4, 1941—The Groveton Papers Company, Wyoming Valley Paper Mills, and the Rushmore Paper Mill, Inc., have removed their local office to larger quarters at 51 Sleeper street, this city, as of March 17. Their telephone numbers are HANcock 3770-3771.

Two-Stage Plan Recommended For Abitibi

Royal Commission Submits Final Report of Its Investigation of Abitibi Power & Paper Co.—Reorganization Plan Involves Minimum Disturbance of Capitalization With Rehabilitation Later.

TORONTO, Ont., April 7, 1941—The Royal Commission charged with the investigation of the affairs of Abitibi Power and Paper Company, has turned in its long awaited report. The commission recommends a two-stage plan for the reorganization of the company which involves a minimum of disturbance to the existing capitalization and contemplates a later stage for completing rehabilitation of the company.

The report was tabled in the legislature March 31, some months after the public hearings in the Ontario House before Mr. Justice C. P. McTague, Sir James Dunn and A. E. Dyment, and states that recent tax requirements have made all previous plans for reorganization of Abitibi impracticable.

Keeping in mind that the company has been in liquidation since 1932 and that a great number of plans have been proposed for its reorganization; that the assets run over one hundred millions of dollars; and that the public hearing by the Royal Commission appointed by the Ontario government took several weeks to bring out all the evidence, one might expect the final report by the commissioners to be a document not only of considerable length, but complexity as well, and that description is, in fact, barely adequate.

Space permits only a summary of the main features of the report, which may be stated as follows:

Main Features of Report

Maturity of the existing 5%, due June 1, 1953, bonds should be extended to Dec. 1, 1965. Present sinking fund provisions should be eliminated. Past due interest should be calculated to Dec. 1, 1940, but from that date no further accumulation of interest on interest should be allowed.

On consummation of the plan, immediate payment of one interest coupon would be made, with overdue interest thereon. Future interest payments would be conditional on maintaining working capital at a minimum of $10.5 millions.

Working capital in excess of $10.5 millions would be used to pay next interest due on the bonds, and any further balance to purchase bonds for retirement in the open market or at par, whichever is the lower.

For the next five years, or until outstanding bonds are reduced to $35 millions, the company would be run by a board of seven directors, of whom four would represent bondholders and three preferred shareholders. At termination of the allotted period, control of the company would return to the shareholders.

Rate of dividend of the present 7% preferred would be reduced to 3½% and on the 6% preferred to 3%. All dividends would become non-cumulative. No dividends would be paid until ordinary creditors are paid in full.

No other changes in the share capital are contemplated immediately, but the report states that "if earnings justify it, some future reorganization among shareholding interests may be involved."

When the plan becomes effective, the new company would deliver to the Montreal Trust Co., as trustee for bondholders, a quit claim and release of all its properties and assets in escrow. This would become effective, giving bondholders full title to the company, at any time during a five-year period from Dec. 1, 1940, if the company failed to pay current interest on bonds for six months or working capital fell below $10.5 millions for six months.

Plan Would End Receivership

If the plan is put into effect, the receiver and manager and the liquidator should at once resign and present bondholders' actions (sale proceedings) against the company be discontinued. The company would also pay costs, including expenses of committees.

Ordinary creditors would get 50% of their claims in equal installments over a four-year period, providing there was no default on the bonds in the meantime. The remaining half would be paid in a similar manner over an additional four-year period if there had been no default at the end of five years.

No effective plan can be based on history of earnings, the commission feels. British or United States capital could not be obtained at present. There is no sound period in the past on which to base a plan. The future is uncertain because of the war, which may mean high earnings for a time, but its end may mean heavy competition and a decrease in earnings.

An immediate sale is inadvisable, in the opinion of the commissioners, and would amount, in fact, "to a foreclosure, or that holders of securities junior to the bonds would be shut out from an equity that may exist, or that may arise, should the condition of the company improve substantially." The commission thinks, however, that "whatever plan may be worked out with respect to the company should preserve the bondholders' right to have their claims satisfied fully in the future before anything is paid to any holders of junior securities."

Regarding the effect of new taxation on plans previously submitted, the report states:

"It is advisable that any plan formulated should avoid the conversion of existing securities into any form of security that will be subject to a tax which would not be imposed in respect of securities previously existing. It is not in the public interest, notwithstanding the exigencies of war, that taxation should deprive the company of every prospect of emerging from its difficulties."

To put the proposals into effect, the commission suggests: "If the parties interested cannot agree to apply for special legislation to make the plan effective, the liquidator should make application under the Companies Creditors Arrangement Act for sanction of the plan. The votes of ordinary creditors and shareholders should be taken first, and if they approve, then a vote of bondholders may be taken."

Hammermill Co. Increases Wages 8 Per Cent

Higher Hourly Wage Scale Announced By Hammermill Paper Co. Effective April 7—Income of 1,200 Families Benefited—Paper and Cordage Men Plan Shad Dinner and Golf Outings—Other News.

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., April 7, 1941—An 8% increase in hourly wages affecting the incomes of some 1,200 families in the city of Erie, was announced on Friday last by Hammermill Paper Company. It was said at the Hammermill plant will go into effect today, April 7. News of the voluntary increase by management was revealed to employes late on Friday on official bulletin boards throughout the plant.

"Business is somewhat improved," President Norman W. Wilson said today. "It has always been our aim to pay the highest wages possible and today's advance in our basic wage scale is the natural outcome of this long-time policy to share any increased income with the men and women of Hammermill."

Paper and Cordage Men Plan Dinner

John J. Shinners, Jr., of Acme Specialty Company and president of The Philadelphia Paper and Cordage Association, Inc., announces the first social event in the many and varied activities of the Association for the year will be the annual shad dinner to be held April 18 at Hotel Philadelphian, 39th and Chestnut streets. This is always a very enjoyable occasion since it is strictly stag, and after the dinner a floor show is staged which is the topic of conversation for many weeks after among those privileged to attend.

The officers, governors, committee chairmen and members for the current year are: president, John J. Shinners, Jr., Acme Specialty Sales Company; vice-president, Harry J. Smith, Thos. W. Price Company; secretary, Richard H. Gifford, H. M. Gifford Manufacturing Company; treasurer, Everett Hoffman, J. E. Fricke Company.

Board of governors, George K. Hooper, Hooper Paper and Twine Company; J. R. Howarth, Howarth Paper Company; E. K. Lay, E. K. Lay Company; Jos. S. Miller, Garrett-Buchanan Company; Arthur B. Sherrill, Mill Representative; E. L. Richard, Buffalo Envelope Company and Frederick I. Brower, Atlantic Gummed Paper Company.

The Membership committee with J. R. Howarth as chairman, is made up of Carroll Gardner of Groveton Paper Company, E. L. Richard, Buffalo Envelope Company and Harry J. Smith, Thos. W. Price Company. Wm. R. Peterson of E. J. Spangler Company and G. L. Nordstrom of A. S. Datz & Son comprise the entertainment committee, while G. L. Nordstrom is in charge of publicity. Last but not least Fred I. Brower of Atlantic Gummed Products Company, who has done such a good job as editor of News'n Nonsense, the official bulletin of the Association, has been reappointed to editorship.

Golf Committee Announces Schedule

The golf committee with E. L. Richards as chairman, announces the following schedule for the season of 1941: May 14, Philadelphia Cricket Club; June 17, Annual outing at Manufacturers Club; July 16, St. Davids; August 20th, Old York Road; September 17, Aronimink; October 7, Pine Valley. Serving with Mr. Richard on the gold committee are: J. Howard Bancroft, Independent Twine & Yarn Co., Inc.; J. D. Clark, J. E. Fricke Company, Hugo H. Hanson, W. C. Hamilton & Sons; F. W. Hastings, American Writing Paper Company; Colson Hillier, Thos. W. Price Company; Frank O'Neill, Jr., International Envelope Company; Arthur B. Sherrill, mill representative; Gordon Smith, Champion Container Company; Butler Smythe, J. L. N. Smythe Company; Morgan Thomas, Garrett-Buchanan Company; Edwin Weihenmayer, Jr., Jessup and Moore Company; George K. Hooper, Hooper Paper and Twine Company; E. L. Richards, Buffalo Envelope Company, and Everett Hoffman of J. E. Fricke Company.

Kalamazoo TAPPI Discusses Polymers

The Kalamazoo Valley Section of the Technical Association of the Pulp and Paper Industry met at the Park American Hotel, Kalamazoo, Mich., on Thursday evening, April 3. W. K. Kidder of the Bryant Paper Company presided as chairman. There were about 60 present.

D. W. McCready of the University of Michigan, R. A. Hayward, vice president of TAPPI and R. G. Macdonald, secretary of TAPPI were introduced and discussed association affairs and the plans for the fall meeting of the National Association to be held at Ann Arbor, Mich., on September 16-19, 1941.

Robert E. Burk of the Western Reserve University and Research Director of the Standard Oil Company of Ohio was the principal speaker and discussed the chemistry of polymers and their application to the manufacture of plastics. Polymerization consists of the combination of two or more molecules to form a larger molecule. This may be accomplished by either addition or by condensation. Dr. Burk showed a number of examples of plastics such as Bakelite, Lucite, Koroseal, Neoprene, etc., and pointed out that one great service of the petroleum industry will be to supply large quantities of polymers at low cost.

Acme Paper Co. Starts at Brockton

[FROM OUR REGULAR CORRESPONDENT]

BROCKTON, Mass., April 7, 1941—The Acme Paper Company has started business as a paper jobber at 80 North Montello street, handling wrapping paper and paper specialties. The company, owned by Lawrence Fone, is at the same location formerly occupied by the A. M. Eaton Paper Company.

W. R. Howard Back from Florida

URBANA, Ohio, April 8, 1941—Ward R. Howard, vice president of the Howard Mills, has just returned from Florida after a six weeks' visit with his brother, Colonel Maxwell Howard. Mr. Howard went to Florida directly from New York following the paper convention in February.

Obituary

Frank B. Barnett

Frank B. Barnett, connected since 1927 with the advertising departments of the PAPER TRADE JOURNAL and Lockwood's Directory of the Paper and Allied Trades, died Wednesday, April 2, at the New York Hospital, New York, after an abdominal operation. Mr. Barnett was aged 78 years and was born in Syracuse, N. Y. He began his advertising career on the Horseless Age and was for a number of years connected with the Class Journal Company in the automobile field in which he was an outstanding success.

The funeral services were held at 1:00 o'clock, Friday, April 4, at the Walter B. Cook Funeral Parlors, 117 W. 72nd street, New York. Mr. Barnett is survived by his widow, Clara, by two sisters, Misses Sophie and Kathryn Barnett, and by a brother, Joseph A. Barnett.

Morris T. Lynch

Following a brief illness, Morris Tyler Lynch, vice-president of the National Folding Box Company, died at Memorial Hospital, New York, on March 28th, at the age of 54 years. The funeral was from his residence, 79 Kensington Road, Garden City, Long Island, N. Y., on March 31.

While Mr. Lynch was born in New Haven, Conn., very early in life he moved to Brooklyn with his family in 1892, at the time his father became the first New York manager for the National Folding Box Company. Upon completion of his schooling in 1902, he joined the New York sales staff of National, where under the able tutelage of his father he secured an unusual knowledge of the folding box business. Mr. Lynch soon demonstrated that he knew how to put this knowledge to good use, and in the following years built up a substantial volume of business as well as an enviable degree of confidence and good-will with his large and important customers. Because of his proven ability, he was made New York manager on the death of his father in 1918, and later was elected a vice president and director, in which executive capacities he ably served until his death.

He is survived by his wife, Mrs. Grace Forbes Lynch; two sisters, Mrs. Grace L. Buckley and Mrs. Edward Klein; and a brother, Walton D. Lynch.

Amel F. Bahr

Amel F. Bahr, 77, president of the Bahr Brothers Manufacturing Company, Marion, Indiana, died March 29 at his home, 2902 Lincoln Blvd. He was the active head of this company, until four weeks before his death.

Mr. Bahr was born at St. Joseph, Mich., in 1864. He came to Niles, Mich., and was employed by the Michigan Wood Pulp Company, now the French Paper Company, for twenty-eight years. He came to Marion, Indiana, and helped to build the Indiana Pulp and Paper Company, in 1892 and remained with this company until it was destroyed by fire. After the fire he rebuilt the mill and remained there until the pulp wood supply became scarce.

He, together with his two brothers, invented the well known Positive Jordan Fillings, thirty-four years ago, and was head of the Bahr Brothers Manufacturing Company, as the president and was active until the time of his passing.

William H. Isles

William Henry Isles, 82, former general superintendent of the West Virginia Pulp and Paper Company at Mechanicville, N. Y. died suddenly on March 21, at his home in Middle Grove, near Saratoga Springs.

Mr. Isles, born in Rock City Falls, had lived most of his life in the Mechanicville section. He retired as superintendent of the paper mill in 1930 and since had lived at Middle Grove. He was a member of the Methodist churches of both Middle Grove and Mechanicville and was active in both.

He is survived by his wife, the former Addie Kilmer; one daughter, Mrs. Maud Johnson of Los Angeles; one son, Charles W. Isles, of Mechanicville; one brother, George Isles of Stillwater; one sister, Mrs. Mary Robinson of San Diego; seven grandchildren and several nieces and nephews.

Funeral services were held from the home and from the Methodist Church in Mechanicville. Burial was in Hudson View Cemetery, Mechanicville.

Fred Whitely

CHICAGO, Ill., April 4, 1941 — Chicago's paper industry lost one of its most valued members last week through the death of Fred Whitely, dean of the sales executives in this territory and for thirty years in charge of the Chicago sales office of the Howard Paper Company, Mr. Whitely died on March 24 after a brief illness and burial was at Findley, Ohio, on March 27. Chicago sales executives, including many members of the Salesmens Association of the Paper Industry, of which he was an active member for many years, attended a memorial service held at the Carrol Funeral Parlors on March 26. One of the most congenial, aggressive and well liked of the paper executives in this city, Fred Whitely's place will be sadly missed.

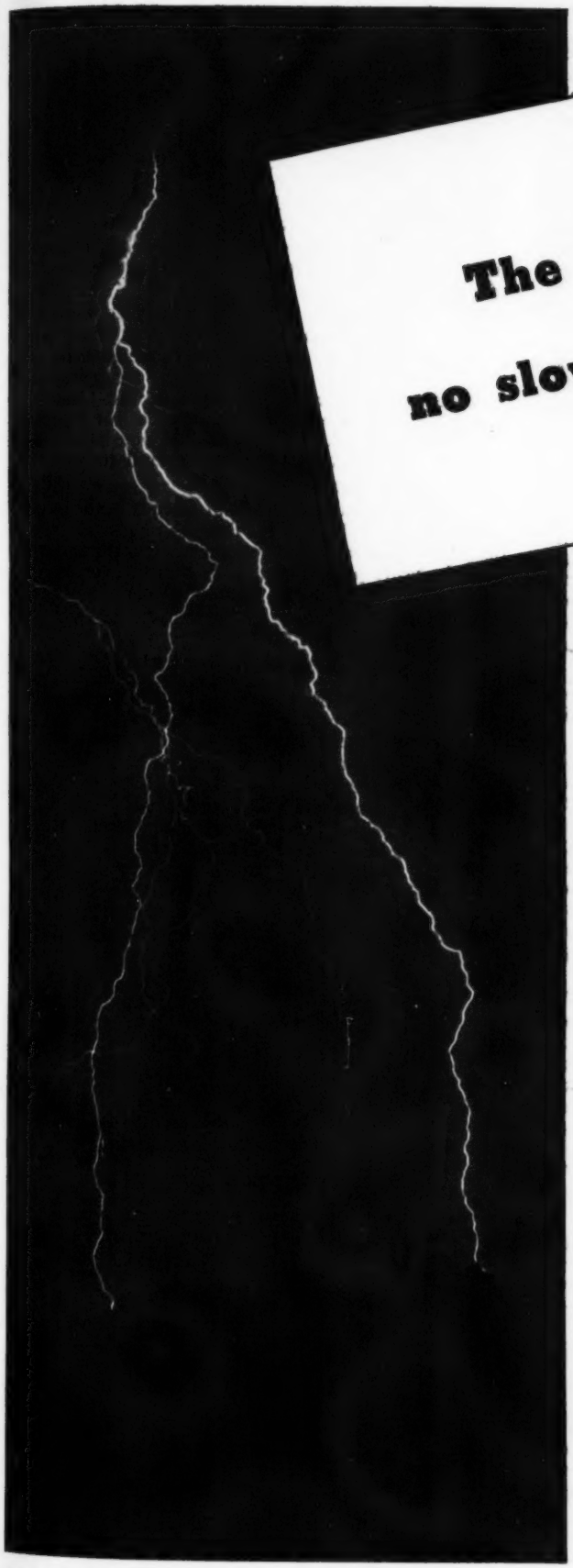
Benton Crane Pomeroy

PITTSFIELD, Mass., April 7, 1941—Brenton Crane Pomeroy, president of the Byron Weston Company, Dalton, Mass., died here recently. Among those who attended the funeral was E. H. Little, representing John Carter & Company, Inc., Boston, distributors of products of the Byron Weston Company.

John F. Peniston, Jr.

John Frederick Penistron, Jr., of 9 Forest avenue, Cranford, N. J., secretary of the Merriam Paper Company, of 135 Hudson street, New York, died April 1 at Muhlenberg Hospital. He was 44 years old and was born in Cranford, where his father was postmaster for eight years.

For twenty-five years Mr. Peniston had been in the employ of the paper company. He was director of the Cranford Welfare Association, was a Mason and was a member of the First Presbyterian Church of Cranford and of the Echo Lake Country Club. Surviving are his wife, Mrs. Catherine Elliott Peniston; two daughters, the Misses Jane and Ann Peniston, and a brother, Denman Peniston.



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Demonstrates New Hipersil Steel

A preview demonstration of the new Hipersil steel was given by the Westinghouse Electric and Manufacturing Company at a luncheon on April 8 at the Hotel Astor, New York. Hipersil steel is regarded by Westinghouse as the biggest advance in magnetic material for alternating current machinery since silicon steel was introduced 35 years ago.

The new product is the result of a joint research development of the Westinghouse Electric and Manufacturing Company and the American Rolling Mills Company. It is now used exclusively by Westinghouse in the manufacture of transformers.

Demonstrations of the superior magnetic characteristics of Hipersil were conducted by Dr. L. B. Chubb, director of Westinghouse research and H. V. Putnam, manager of the transformer division of the Westinghouse company. The name, Hipersil, is derived from the words high, permeability and silicon and was registered as a trade mark by Westinghouse in 1934. It is a steel with a preferred orientation of the crystal lattice. When used in transformer cores, Hipersil possesses one-third greater flux-carrying capacity than conventional silicon steel, requires no greater magnetizing force and its losses are no more. In its first applications in the manufacture of transformers, it has reduced size and weight of distribution, and has facilitated reduction of copper losses some 10%, thereby increasing short-time overload capacity.

Demonstrations by Dr. Chubb and Mr. Putnam showed the much improved magnetic characteristics of Hipersil over ordinary silicon steel. Samples of the new steel were distributed to guests to show the orientation of crystals in one direction, in which direction the metal is to be used. The marked superiority of Hipersil was indicated by the regimented orientation of the crystals, compared with the random orientation of the crystals in ordinary silicon steel. It is due to this important quality that Hipersil has increased induction capacity of one-third more than silicon steel, with corresponding less noise or hum.

The marked saving in weight and material was indicated by two transformers on exhibition, both of which were electrically equivalent of each other. The one made from Hipersil steel required 47 pounds less iron and 22 pounds less copper wire than the transformer made of silicon steel. It was pointed out that about the largest single-phase transformer practicable to mount on a pole is 75 kva. With Hipersil, such a unit can be replaced by a 100-kva transformer. Prevailing practice limits the size of three transformers hung on a single cross arm to about 37½ kva each, but this limit can now be easily increased to 50 kva.

Further particulars of this new product, its saving in cost and its substantial contribution to industry, may be obtained from Department 7-N-20, Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa.

Paper in Peru from Bagasse

M. Joaquim de la Roza has just returned to New York by plane from Lima, Peru, where he spent three and one-half weeks putting in operation the mill of W. R. Grace & Co. This mill is now producing paper from bagasse.

George Churchill Joins Hubbs

Congratulations are due Charles F. Hubbs & Co. in securing the services of George Churchill, a man well known in the paper industry, to take charge of their Bridgeport branch.

Mr. Churchill succeeds William C. Brandt, who has been manager for Hubbs at Bridgeport since the inception of this branch, during which period the company's business in New England has shown a steady increase. "Bill" Brandt who has been identified with the Air Arm of the Marine Corps, of late as an inactive reserve, has been ordered to active duty as of April 15.

Mr. Churchill has long been connected with the paper industry. His first experience was gained with J. E. Linde Company, with which organization he had risen to position of manager of their wrapping and stationery department. Following this, Mr. Churchill associated himself with Coy Hunt & Co. for a period of about two years, and in 1923 he joined Coy Disbrow & Co., the connection he severed to join the Hubbs organization.

George Churchill has a host of friends in the industry which is a tribute to his fine personality. In addition, the experience and general knowledge acquired over the years peculiarly qualify him to care for the New England interests of the pioneer house of Hubbs.

Paper Mill Workers Meet at Norfolk

Oswego, N. Y., March 29, 1941—A meeting of the Northern New York District Council of Paper Mill Workers was held Sunday at Norfolk following which it was announced that delegates from the various unions would hold their next conference in this city early in June. Sixty delegates were present at the meeting held at Norfolk and heard Jacob Stephan, organizer, address the gathering. He also installed Lawrence Allen, of Dexter, as financial secretary and Warren Peck, of Carthage, as treasurer. They succeed Rose Ward, of Watertown, and Hatley, of Watertown, resigned. There was discussion of a new agreement between employers and workers to come up this spring.

M. S. Black Elected Secretary

Malcolm S. Black on Tuesday was elected secretary and treasurer of Union Bag and Paper Corporation and a member of the corporation's board of directors. He joined the company last year as personnel manager.

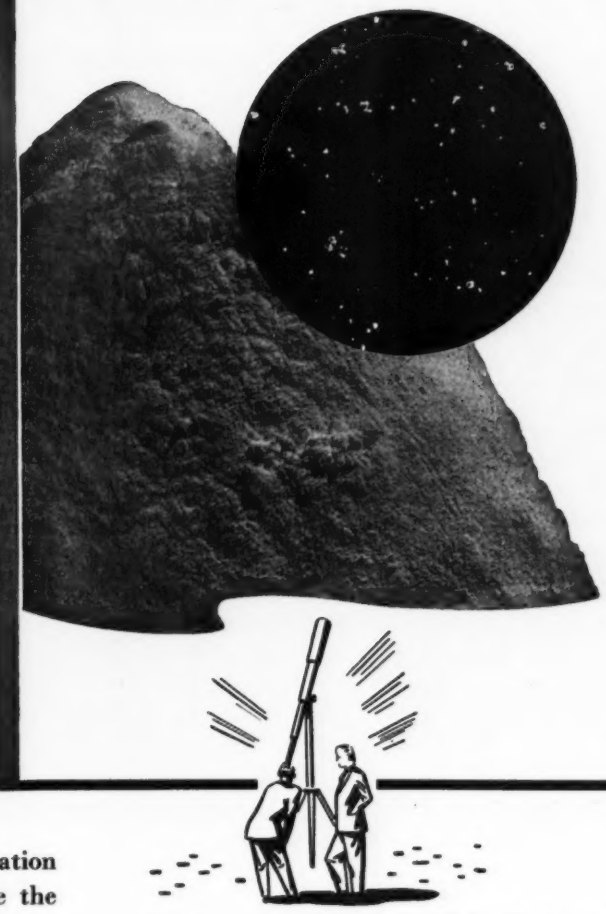
Previous to his association with Union Bag and Paper Corporation, Mr. Black was for ten years an officer and director of Bliss, Fabyan & Co. and before that vice-president and director of Butterick Publishing Company. All other officers of the company were re-elected.

Pine and Eucalyptus for Pulp

Washington, D. C., April 9, 1941—The consumption of pine and eucalyptus in the manufacture of wood pulp in Brazil for the paper and rayon industries is growing under current war time restrictions on the free transit of goods. A project is now under way for the manufacture of wood pulp by using 75 percent pine and 25 percent eucalyptus which will be suitable for use in the manufacture of writing paper.

YOU'RE LOOKING AT A NEW STAR..

C-700 ALUMINAS



Under the microscope, at a magnification of 500X, C-700 Aluminas look like the photomicrograph shown above; uniform, spherical particles having a calculated size of less than 3,000 mesh. No wonder this material makes finer coatings for paper!

C-732 Alorco Hydrated Alumina is the pigment recommended for coating papers. Where it is used, only about one-half as much casein is required. Coatings have high gloss and brilliance, high opacity, and good calendering characteristics. The coating is less brittle, and it has good resistance to fracture on folding.

Coating slurries of C-732 Hydrated Alumina have high fluidity at high pigment concentrations. This permits rapid, uniform application of heavy coatings, with none of the difficulties encountered in handling ordinary viscous slurries.

Would you like a sample of C-732 Alorco Hydrated Alumina to test on your own papers? We'll gladly send it to you. Write ALUMINUM COMPANY OF AMERICA (Sales Agent for Aluminum Ore Company) 1967 Gulf Building, Pittsburgh, Penna.

Reg. U. S. Pat. Off.

ALORCO

ALUMINUM ORE COMPANY

ALUMINUM AND FLUORINE COMPOUNDS

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending April 9, 1941

	High	Low	Last
A. P. W.	....	....	....
Armstrong Cork Co.	28⅝	27¼	27¼
Celotex Corp.	9⅛	8⅝	9
Celotex Corp., pf.	70½	69	70
Certain-Teed Products Corp.	4	3⅝	3⅝
Certain-Teed Products Corp., pf.	30	25¾	26⅛
Champion Paper & Fibre Co.	19	18	18
Champion Paper & Fibre Co., pf.	....	....	....
Congoleum-Nairn Co.	16⅛	15	15⅜
Container Corp. of America	14½	13¼	13¼
Continental-Diamond Fibre Co.	8	7¾	7¾
Crown-Zellerbach Co.	13¼	12⅛	12⅛
Crown-Zellerbach Co., pf.	87½	85½	86½
Flintkote Co.	13½	12⅜	12½
Robert Gair	1⅝	1⅜	1⅜
Robert Gair, pf.	16½	16	16
International Paper & Power	14¾	12⅜	12⅝
International Paper & Power, pf.	67¾	62½	62½
Johns-Manville Corp.	60	56	56¾
Johns-Manville Corp., pf.	125½	125	125
Kimberly Clark Corp.	....	....	....
MacAndrews & Forbes	29	28½	28½
MacAndrews & Forbes, pf.	....	....	....
Masonite Corp.	23¾	22¾	22¾
Mead Corp.	8½	8¼	8¼
Mead Corp., pf.	72	71	72
Paraffine Companies, Inc.	30¼	30¼	30¼
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	13⅞	13	13¼
Rayonier, Inc., pf.	26½	25	25
Ruberoid Co.	17½	16½	16½
Scott Paper Co.	37½	37¼	37⅜
Scott Paper Co., pf.	115	114	114
Sutherland Paper Co.	21½	21	21
Union Bag & Paper Corp.	12	10⅜	10¾
United Paperboard Co.	3¼	2¾	2¾
U. S. Gypsum Co.	63½	59½	60½
U. S. Gypsum Co., pf.	173	173	173

New York Curb Exchange

High, Low and Last for Week Ending April 9, 1941

	High	Low	Last
American Box Board Co.	4½	4½	4½
Brown Co., pf.	17¼	16¾	16¾
Great Northern Paper	41	40½	40½
Hummel-Ross Fibre Corp.	5⅜	5¼	5⅜
National Container Corp.	12½	11¾	11⅞
St. Regis Paper Co.	2⅛	1⅞	1⅞
St. Regis Paper Co., pf.	85½	81	82
Taggart Corp.	2¼	2⅛	2⅛

Nashua Nets $368,030

The Nashua Gummed and Coated Paper Company for 1940: Consolidated net income, $368,030, after excess profits tax, minority interest and exchange adjustments, compared with $362,508 after inventory adjustment in 1939. After deducting premiums paid on preferred stock called for redemption, and preferred dividends, a balance of $334,370 was shown for 1940, or $7.25 a share on 46,058 shares of common stock outstanding. This compares with a balance for 1939 of $326,172, after premiums paid on preferred stock called for redemption and preferred dividends, or $7.08 a common share. With the retirement of 1,980 shares of first preferred called for redemption on January 1, 1941, the entire capitalization of parent company is represented by common stock.

Consolidated Nets $874,520

The Consolidated Paper Corporation, Ltd. (Canada) and Subsidiaries—for 1940 reports a net profit of $874,520 after provisions for interest on bond and debenture stock, equal to 34 cents each on 2,549,942 shares of capital stock. This compares with profit in 1939 of $3,404,154, which was transferred to depreciation reserve. Current assets on December 31 last, $16,558,019; current liabilities, $4,545,988, against $12,328,022 and $4,690,108 respectively at end of 1939.

Puget Sound Earnings Up

The Puget Sound Pulp and Timber Company made $795,553 net profit in 1940 after all charges, write-offs and tax provisions, according to the annual report. This equals $2.40 per average outstanding common share after preferred dividends and compares with $82,065 net profit in 1939. Working capital was $889,174 at December 31, 1940, against $269,554 for the previous year-end.

Net sales practically doubled, the report states, $6,022,583 for 1940 comparing with $3,027,501 in 1939. Profit of $1,460,553 before Federal tax provisions compares with $99,753 in 1939. Non-recurring profit from sale of the Anacortes mill was $247,742.

Total taxes on 1940 operations were $807,720 or $2.75 a share compared with $102,552 or 41 cents a share for 1939. Federal income and excess profits taxes of $665,000 or $2.27 a share compared with $17,688 or 7 cents a share for the previous year.

Operation of the new unit at the Bellingham mill began in March, 1941, adding an estimated 40,000 tons production to the Bellingham plant in 1941 and 60,000 tons annually thereafter. This will increase capacity over the combined Bellingham and Anacortes mills by 10,000 tons in 1941 and by 30,000 tons in following years.

Mead Earns $1.56 Share

The Mead Corporation and subsidiaries for 1940: George H. Mead, president, reported net profit of $1,426,881 exclusive of profit on sales of investment, equal after preferred dividends, to $1.56 each on 619,374 shares of no-par common stock, excluding 5,819 shares in treasury. Net profit for 1939 was $744,028, or 45 cents a common share. In addition to the above net profit for 1940, there was obtained from sale of corporation's holding in St. Joe Paper Company a net profit of $220,557 which was credited directly to earned surplus. Earned surplus account was charged with provision for contingencies in amount of $100,000. For twelve weeks to December 28, 1940, net profit was $443,684, against $497,511 in similar period of previous year. Net sales for 1940 amounted to $24,506,440, against $21,986,586 the year before. Balance sheet as of December 28, 1940, shows current assets of $10,209,758, including cash of $1,713,964 and inventories of $5,523,821, while current liabilities were $2,277,420. On December 30, 1939, current assets were $8,025,399 with cash of $1,369,804 and inventories of $4,236,741, while current liabilities totaled $2,235,110.

Masonite Earnings Up

CHICAGO, Ill., April 4, 1941—Masonite Corporation reports for the second quarter of 12 weeks, from Dec. 22, 1940, to March 15, 1941, net profits of $302,236.92 after depreciation, income taxes, and other deductions, subject to final audit. This is equal to 52 cents a share on 539,210 shares of common stock outstanding, after providing for preferred divi-

dends. This represents an increase of 19% over net profits of $254,872.55, or 43 cents a share, on the same number of common shares, in the corresponding period last year.

Sales for the 12-week period totaled $2,596,496.99, as compared with $1,925,275.43 for the same period last year, representing an increase of 35%.

For the 28 weeks, from Sept. 1, 1940, to March 15, net profits totaled $645,493.83, or $1.10 a share. This is a decrease of 7% under net profits of $695,-931.12, or $1.20 a share, for the same period last year.

Sales for the 28 weeks totaled $5,852,885.82 as compared with $4,544,591.88 in the same period last year, representing an increase of 29%.

Gair To List Stock

The Robert Gair Company, Inc., has been authorized to list on the New York Stock Exchange 186,392 shares of 6% cumulative preferred stock, $20 par value, and 559,176 additional shares of common stock on official notice of issuance under a plan of recapitalization. The same company has notified the Exchange that Charles Oechler has been elected a director and that Amory Taylor and Charles R. Biggs have been elected, respectively, vice president and secretary, "for the sole purpose of signing the forty-year 6% income notes of the company and affixing the corporate seal thereto on behalf of the company."

Gaylord Container Nets $2.04

The Gaylord Container Corporation and its subsidiary had a net profit in 1940 of $1,391,039 after all charges including depreciation, depletion, amortization, interest and provision for Federal income, state and excess profits taxes.

After allowing for preferred dividend payments, the 1940 net is equivalent to $2.04 a share, on 539,221 common shares. This compares with $382,096, or 71 cents a share, earned in 1939.

National Container Earns $2.40

The National Container Corporation and subsidiaries, for the year ended December 31, reports a net profit of $795,671 after charges and taxes, equal to $2.40 a share on 330,482 shares of common stock; year ago, $357,945, or $1.08 a share.

Chillicothe Earns $96,879

The Chillicothe Paper Company for 1940 reports a net income of $96,879, against $150,625 earned in previous year; net sales, $2,114,872, against $2,109,-070.

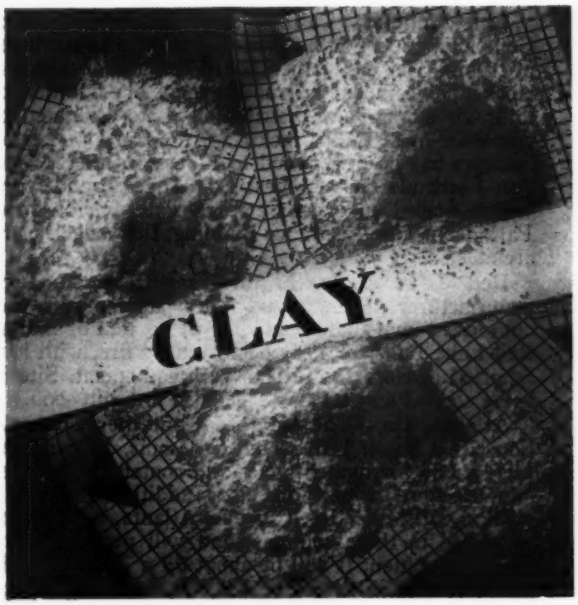
Filer Fibre Earnings Up

The Filer Fibre Company for 1940 reports a net income of $126,992, equal to 95 cents a share on 133,-265 common shares. Net income for 1939 was $28,-030 or 21 cents a share.

Old Colony Nets 16,132

The Old Colony Envelope Company for 1940 reports a net income of $16,132, against $10,171 in 1939; net sales, $933,790, against $912,660.

***BECAUSE** uniformity is an important factor in clay for paper making, Witco takes special care to maintain a high standard in this respect. As a result many paper manufacturers are using the Witco product for an increasing variety of demands. Witco Clay has excellent color*



and can be depended upon to give highly satisfactory results in a wide range of applications. It is especially recommended for use in coated papers. Produced from a deposit distinguished for its uniform quality and good stiffening properties, Witco assures uniformity further by exceptionally careful methods of grinding. The price is low, offering opportunities for economy without sacrifice of quality in the finished paper. You are invited to send for trial quantities and make tests.

WISHNICK-TUMPEER, INC.

Manufacturers WITCO *and Exporters*

New York, 295 Madison Ave. • Boston, 141 Milk St. • Chicago, Tribune Tower Cleveland, 616 St. Clair Ave., N. E. • Dallas, Texas, 610 Dallas National Bank Building • Witco Affiliates: Witco Oil & Gas Company • The Pioneer Asphalt Company • Panhandle Carbon Company • Foreign Office, London, England

BUY DIRECT AND PROFIT DIRECTLY

CONSTRUCTION NEWS

Neenah, Wis.—The Kimberly-Clark Corporation, manufacturer of book, cover and other paper stocks, has plans maturing for new one-story addition to local Lakeview mill, to be used primarily for storage and distributing service. Work is scheduled to begin soon. No estimate of cost announced.

Los Angeles, Calif.—The Pioneer-Flintkote Company, 5500 South Alameda street, manufacturer of roofing papers, paper board and other kindred stocks, has completed plans for one-story addition to mill, for storage and distribution. It is estimated to cost close to $100,000, including equipment. Erection contract has been awarded to Myers Brothers, 3407 San Fernando Street, West Los Angeles, and work will be placed under way at early date. Parkinson & Parkinson, Title Insurance Building, Los Angeles, are architects.

Red Lake Falls, Minn.—Smith Paper, Inc., manufacturer of tissue and other paper stocks, has authorized immediate rebuilding of portion of mill at Red Lake Falls, recently destroyed by fire, with loss reported at close to $75,000, with equipment. Site is being cleared and work is scheduled to begin soon.

Atlanta, Ga.—The Gaylord Container Corporation, 2820 South 11th street, St. Louis, Mo., manufacturer of corrugated boxes and containers, has begun erection of new one-story addition to branch plant at 276 Miller Reed avenue, Atlanta, recently referred to in these columns, and will push work to early completion. It will be about 90 x 200 feet, estimated to cost in excess of $85,000, including equipment. It is proposed to have structure ready for occupancy late in the spring. Hardin & Ramsey, 161 Spring street, N.W., Atlanta, have the general erection contract.

Brooklyn, N. Y.—The Apex Paper Converting Company, 74 Washington street, manufacturer of paper goods, has leased two floors in Building No. 64 of the New York Dock Company, foot of Joralemon street, and will occupy for expansion.

Manchester, Conn.—The Rogers Paper Manufacturing Company, manufacturer of fiber board products, has authorized improvements in storage facilities at mill, and will relocate on new sites two one-story buildings, 20 x 36 feet, and 20 x 30 feet, respectively for this purpose. Work is scheduled to proceed at once.

Rittman, Ohio—The Ohio Box Board Company, manufacturer of box board, chip board and kindred paper products, has awarded general contract to the George A. Rutherford Company, 2725 Prospect avenue, Cleveland, Ohio, for erection of proposed one-story addition to mill, previously referred to in these columns. Construction is scheduled to begin at once. Cost is reported over $100,000, including equipment.

Kalamazoo, Mich.—The Levine Waste Paper Company, Inc., is considering the rebuilding of a one-story warehouse structure at 2009 East Michigan avenue, occupied under lease by the Edward Sider Company, recently destroyed by fire. Loss estimated close to $20,000.

Hoboken, N. J.—The Hinde & Dauch Paper Company, West Decatur street, Sandusky, Ohio, manufacturer of corrugated boxes and containers, has approved plans for new one-story addition to factory branch, storage and distributing plant at 550 Ninth street, Hoboken, reported to cost about $45,000, with equipment. General erection contract has been awarded to J. F. Mitchell, Inc., 40 Clinton street, Newark, N. J., and work will proceed at once.

St. Marys, Ga.—The St. Marys Kraft Corporation, St. Marys, now constructing a new mill near Kingsland, vicinity of St. Marys, previously noted in these columns, has awarded contract to the Industrial Electric Company, Inc., 114 West Bay street, Savannah, Ga., for electrical work at mill, including installation of motors, controls, duct lines, lighting equipment and other electrical facilities. Erection of plant is progressing rapidly. It will consist of several large one and multi-story buildings for sulphite pulp production, and will be equipped for an initial capacity of about 100 tons per day. The new plant will represent an investment of more than $2,500,000, with machinery, and will be ready for service in near future. The Morton C. Tuttle Company, Park Square Building, Boston, Mass., is general building contractor. George F. Hardy, 305 Broadway, New York, N. Y., is consulting engineer. Company is affiliated with the Gilman Paper Company, Gilman, Vt.; Charles Gilman is president.

Chicago, Ill.—The R. E. Jones Paper Company, 111 West Washington street, has been chartered with capital of $20,000, to manufacture and deal in paper products. Principal incorporators are R. E. Jones and G. A. Gladson. Company is represented by Winston, Strawn & Shaw, First National Bank Building, attorneys.

New Haven, Conn.—The New Haven Pulp and Board Company, Railroad avenue, manufacturer of paper board specialties, news board, etc., has taken out a permit for alterations and improvements in mill. No estimate of cost announced. Work will be placed under way at once.

Charleston, S. C.—The West Virginia Pulp and Paper Company, 230 Park avenue, New York, N. Y., with mill at Charleston, has awarded contract to the Ingalls Shipbuilding Corporation, Decatur, Ala., for two fabricated steel deck barges for river service in connection with operations at local mill. Company has work under way for expansion in chemical department at Charleston mill, as recently noted in these columns, with installation of new equipment for the recovery of chemicals from mill waste, reported to cost over $300,000, with machinery.

To Build Sulphate of Alumina Plant

The General Chemical Company, 40 Rector street, New York, N. Y., will begin work at once on initial unit of new mill on 12-acre tract of land near Vancouver, Wash., recently acquired. It will be one-story, about 51 x 150 feet, equipped for the production of sulphate of alumina, with output for paper mill service in the Northwestern district.

Indianapolis Active

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., April 7, 1941—Influenced by improved economic conditions and an ever widening consumer base, the entire paper trade in this section is doing an increasing volume of business. This applies to virtually the entire trade. While prices show little change, such changes have been slightly upward and the market is very firm. There are many who believe the entire price base is too low and out of line when demand and supply is considered, but there also is a well defined desire to prevent anything even remotely resembling a run-away market.

FINE PAPER

Fine paper demand continues good and with the coming of spring is expected to be even better. Quite a bit of direct mail advertising is being issued and more is being figured on. Books, ledgers and covers show a firm price range.

BUILDING PAPERS

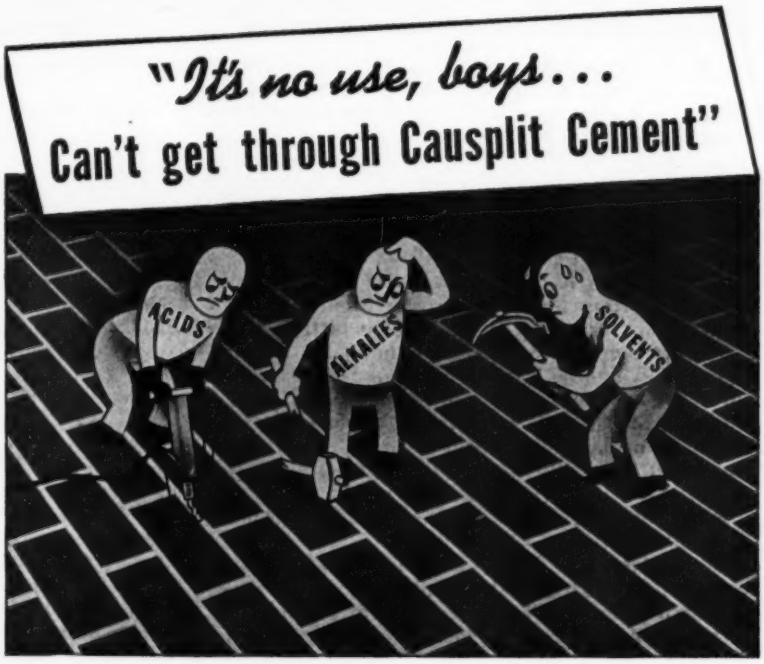
As was the case this time a year ago, demand for building papers and roofing is enormous. Dealers carried fairly well balanced stocks during the entire winter, but building continued uninterrupted during most of this period and now that spring is upon them, they find their stocks low and demand heavy. There have been no strikes in the building trades in this section and construction volume is much heavier than it was a year ago.

Some buying of summer specialties already has begun and this is expected to increase rapidly during the remainder of this month. Demand from breweries for paper containers and from the dairy and ice cream trade is increasing. Several local dairies are featuring the waxed container for milk instead of the glass bottle and are reporting a good demand for the relatively new innovation.

WRAPPING PAPER

Wrapping paper and bag demand is heavy, due to increased retail trade and prices are firm. Twine is moving nicely. Tissues are in good demand.

A fairly strong market has developed for waste paper and generally, paying prices are a trifle higher than they were.



Its unique chemical resistance makes Causplit Cement a success where other cements fail. For Causplit readily handles a wide range of strong acids, alkalies and solvents at temperatures up to 350°F.

And Causplit is quick-setting, tough and durable, easy to apply, resistant to abrasion and to rapid changes in temperature. Proved admirable for corrosion-proof equipment lining in extensive industrial tests, Causplit Cement represents a considerable improvement over Penchlor Acid-Proof Cement and Asplit Cement, which have been successfully used in many industries for over 7 years.

CHEMICAL PLANTS profit by using Causplit because it resists hydrochloric, phosphoric and other strong acids, carbonates, sulfates and other salts, ammonia and various strong alkalies, phenol, toluol, alcohols, acetone and numerous other chemicals. Causplit Cement can be used in equipment handling alkalies and acids alternately—where other cements "wash out."

PAPER AND PULP MILLS find Causplit economical and durable for pulp digesters, bleaching system equipment, acid towers, recovery systems, etc. It withstands abrasion, repeated washings, sudden temperature changes, and chemicals used in the industry—including 50% caustic soda, soda ash, hypochlorites and chlorine, sulfurous acid, sodium sulfite, sodium sulfide, alum and others.

STEEL MILLS can use Causplit Cement for pickling, neutralizing and degreasing tanks and similar equipment because it is unaffected by sulfuric, hydrofluoric and hydrochloric acids, by strong alkalies, salts and solvents. Causplit maintains tight joints and preserves bricks, far outlasting other types of cement construction.

Wire or write today for FREE TEST KIT, including samples, booklet of information and test data showing Causplit's resistance to various acids, alkalies and solvents. Pennsylvania Salt Manufacturing Co., Widener Bldg., Philadelphia, Pa.—New York • Chicago • St. Louis • Pittsburgh • Wyandotte • Tacoma.

PENNSYLVANIA SALT MANUFACTURING COMPANY
Chemicals

E. A. Charlton Goes With Union Bag

Alexander Calder, president of the Union Bag and Paper Corporation, has announced the appointment of E. A. Charlton, a former vice president of International Paper Company, as consulting engineer. An outstanding authority on technical matters concerning the art of pulp and paper making Mr. Charlton will make his headquarters in the New York office of Union Bag and Paper Corporation where he will act as consultant and engineer on all technical problems.

Mr. Charlton has spent his entire lifetime, since graduating from McGill College in Montreal, as an engineer and executive in the paper industry. In addition to his executive position at International Paper Company where he was in charge of both manufacturing and sales of many of its divisions, he has served as manager of research for Abitibi Power and Paper Company, Superintendent of Brompton Pulp and Paper Company, manager of the paper properties of the *New York World*, consultant for the U. S. Lumber Company, of Scranton, Pa., and general manager of Crossett Paper Mills.

Mr. Calder also announced that T. M. Avery, a vice president of Union Bag and Paper Corporation, had been given a full time assignment to direct the corporation's research developments and that operating management of all of the company's conversion factories will be taken over by Dr. K. R. Karlson, who has been named manager of factory operations.

Mr. Avery, who has heretofore been responsible for both research and factory operations, is one of the industry's leading designers and builders of bag making and printing machinery. Dr. Karlson, whose most recent position has been assistant to the president, was formerly chief chemist for the company, assistant to the general mill manager, manager of the Kaukauna Mill and manager of the Hudson Falls Mills.

Sealright Completes Expansion

FULTON, N. Y., March 24, 1941—Announcement is made here that a large new addition has been virtually completed to the plant of the Sealright Corporation which will allow a substantial increase in production. Equipment has already been installed in the structure and manufacturing operations started. The structure was built by the Ferguson Construction Company, of Ohio, at a cost of $90,000. It was also stated that the new plant of the concern at Los Angeles, Cal., would be ready for operation April 1 which will permit greater production of milk bottle caps and containers. In the past the West Coast plant has been operating a leased building but a year ago the concern purchased land and started construction of the new structure. Eugene Skinner, president of the local concern, is now at Los Angeles and will remain until after the new plant is opened.

Credit Men to Meet May 11

Plans for the 46th annual Credit Congress of the National Association of Credit Men was announced on April 7. The meeting will be held in New Orleans, La., May 11 to 15 inclusive, with headquarters at the Jung Hotel. Approximately 2,000 credit executive delegates will attend. Among the industry and business groups to participate in the daily sessions will be fine paper manufacturers, paper products, converters and wall paper.

Robertson Holds Winter Party

The Robertson Paper Box Company, of Montville, Conn., held its Fourth Annual Winter Party at the New London Y. M. C. A., New London, Conn., Saturday, March 22, and an exceptionally enjoyable evening was put on by the committee. Prizes for the bowling contests were awarded as follows:—Women's bowling—First prize, Mrs. Fred Marsh and Miss Elizabeth Boska; second, Mrs. Harry Bell and Miss Ann Hudyma; team prize, Mrs. Marsh, captain. Men's bowling—First prize, Fred Marsh and Harry Bell; second, Joseph Mrowka and Stanley Kobelski; team captain, Norman Rioux.

A delicious turkey dinner was enjoyed at 6 P. M., with community singing, after which service buttons were presented to the following:

40 years' service—James B. McFarlane; 20 years' service—Ralph A. Powers and Edward J. Bonville; 15 years' service—Albert Taylor, Isaac Frank, Louis Manville; Sherwood Joynt, James Sarayusa, Fred Zinck, Charles Allen, Walter Ywarsky, Harold Stevens, Robert L. Page; 10 years' service—Anna Bellucci, Nicholas Fanizzi, Alex Wielachowski, Leo Manville, Olga Everett, Frank Pachiodo, Ethel Rice, Walter McFarlane, Walter Church, Stanley Mrowka, Amos Jesmer, Fred Marsh, Donald Gero; 5 years' service—Joseph La Vallie, George N. Woods, Sr., James A. Hill.

President Powers' twenty-year button was presented to him by Harry W. Schwartz, vice president in charge of production. Games of various kinds were played during the evening, and dancing and presentation of prizes took place in the gym from ten to midnight.

Paper Club Formed

A group of New York paper merchants, mill executives and others associated with the paper industry met on April 2 at the Arkwright Club for the purpose of considering the formation of a Paper Club of New York. The club is to function purely as a social organization and will meet periodically to promote the common interests of those affiliated with the paper industry.

The following officers were elected: president, Arthur W. Pohlmann; vice-president, George S. Johnstone; treasurer, Stanley O. Styles, and secretary, Alfred S. Walden.

Government Paper Bid

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 9, 1941—Government Printing Office has received the following bids for 40,000 pounds of 22½ x 28½ melon wood bristol board; Old Dominion Paper Company, 4.977 cents; R. P. Andrews Paper Company, 5.24 cents; Barton, Duer & Koch Paper Company, 4.95 cents; Whitaker Paper Company, 5.23 cents; and Mudge Paper Company, 5.3 cents.

Century Paper Co. Moves

BOSTON, Mass., April 7, 1941—The Century Paper Company, Inc., which recently purchased the stock and fixtures of Knight, Allen & Clark, Inc., has removed to the offices of the latter company. The offices are being renovated and rebuilt. The new telephone number is HANcock 1245.

N. E. Paper Men Meet

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., April 7, 1941—A meeting of the board of directors of the New England Paper Merchants Association was held at the office of the organization Wednesday afternoon, April 2, preceding the meeting of the association at the Hotel Manger the evening of that day. With President Charles A. Esty presiding, members were present from New Haven, Portland, Springfield and Boston.

The following appointments were made: Delegates to the National Paper Trade Association, Fine Paper Division, John H. Brewer, Storrs & Bement Company; Wrapping Paper Division, Floyd H. Blackman, D. F. Munroe Company. Committee of National Association, Fine Paper Division, Wm. N. Stetson, Jr., Storrs & Bement Company, and J. F. Halloran, Century Paper Company; Wrapping Paper Division, J. E. Roach, Fort Hill Paper Company, and John F. Blackman, D. F. Munroe Company. Survey Committee, W. H. Walpole, Rutter & McNaught, Inc. Traffic, P. A. McGreenery, Carter Rice & Co., Corporation. Wrapping Merchandise, J. C. Campbell, Industrial Paper Company, Pawtucket, R. I. Auditor, of New England Paper Merchants Association, Raymond B. Nichols, Storrs & Bement Company.

A budget for the current year was approved.

A motion was passed endorsing the idea that each merchant should display a United States flag in his place of business.

Plans were made for holding a spring outing, in May at a country club in Metropolitan Boston. The outing is to be held May 19 at the Oakley Country Club, Watertown.

At the dinner there was a good attendance, with 37 present. The guest speaker, J. Harry Londergan, director, Statistical Research Division, National Paper Trade Association, gave lectures including analyses of the 1940 operations compared with those of the last five years in both fine papers and wrapping papers, illustrated by charts. He distributed pamphlets including discussion of "Why Earnings Vary Among the Fine Paper Merchants."

Harry Dowd, of H. J. Dowd Company, Inc., Cambridge, Mass., gave an address, stressing the importance of cooperation among paper merchants in connection with the defense program. Mr. Dowd emphasized the importance of "keen competition and clean competition."

John Brewer and Floyd Blackman gave reports of the convention of the National Paper Trade Association.

It was announced that a paper priorities board had been set up by the Office Production Management the previous week, indicating the fact that paper is of immense importance in the defense program.

You will find Appleton N.P. Rolls on most large stacks operating on machine coated stock. Why? This new filling stands up under higher speeds, gives long service, finer finish, freedom from marking and limits discoloration of the paper.

No matter how different your finishing problem may be, you can find an Appleton Roll to fit your super-calender and embossing requirements.

Simplex Earnings Up

The Simplex Paper Corporation for 1940 reports net earnings, after excess profits tax, of $146,578, equal to 50 cents a share on 290,000 capital shares, against $134,759, or 45 cents a share, in 1939.

PAPER
TRADE JOURNAL
This Reg. U. S. Pat. Off.
Henry J. Berger
EDITOR

Vol. 112 April 10, 1941 No. 15

COMING EVENTS IN PAPER INDUSTRY

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

AMERICAN PULP AND PAPER MILL SUPERINTENDENTS ASSOCIATION, Twenty-second Annual Convention, Poland Spring House, Poland Spring, Me., June 17-19.

GOVERNMENT CONTROL

As the national defense program unfolds it becomes increasingly plain that important changes are taking place in industry. For years the nation's production has so rapidly expanded that the question of finding markets to absorb our increasing output has become a serious one. Now that rearmament on a grand scale is in progress production must be speeded up and a market is waiting to absorb a wide variety of materials and manufactured goods. But, as peace-time economy is more and more changed under the urgency of producing armaments, it is inevitable that Government planning and control of all industry must occur.

Government regulation of labor and control of industry has been slowly increasing, but the present attitude of unionized labor and its use of force rather than legal means, must hasten the time when Government regulation is essential to settle strikes. There is now a growing demand in Congress for legislation to remedy the labor situation which is becoming so acute that essential production is seriously halted. If this step is taken it will lead to other steps in Government control of prices, priorities, investments and foreign trade. And such central planning is considered necessary to accomplish so huge a project as the large-scale defense program inaugurated by the United States. The undertaking itself has created an emergency and the trend toward concentration of industry and finance may be expected to be extended.

A gigantic new industry is gradually coming to life in the United States under successive Congressional appropriations and administrative defense measures, states the Guaranty Trust Company of New York in discussing some of the effects on American business of rearmament in the current issue of *The Guaranty Survey*, its monthly review of business and financial conditions, published on March 31. "This new industry has already become one of the most powerful forces operating in the business field, and its influence will continue to expand for some time to come. Its aggregate output over the next few years will mount into tens of billions of dollars. Like any other new industry of large proportions and swift growth, it is raising the level of industrial output and the volume of employment, and its effects are spreading over the entire range of business. But because it is wholly dependent on governmental action, because it is essentially temporary in character, and because it is devoted to the production of articles which, while admittedly necessary, as a whole make little direct contribution to economic welfare, its ultimate implications are radically different from those of a more natural and more lasting type of industrial growth."

In discussing the question of private demand, *The Survey* says in part: "One of the principal questions that the nation has had to face in mapping the defense program is whether steps should be taken to curtail normal private demand in order to speed rearmament; in other words, whether rearmament activity should partially supplant ordinary business activity or be superimposed upon it. . . . In numerous branches of business, notably in those dealing with foodstuffs and other farm products, there appears to be no valid reason for interfering with normal demand. With respect to other industries partially related to defense, such as the automobile industry, to what extent private needs may have to be sacrificed to the requirements or rearmament is still unsettled."

Commenting on increased Government control, *The Survey* points out that, "An outstanding consequence of the current emergency is, of course, the progressive extension of governmental control in the economic sphere. Thus far, this control has not been pushed to extreme lengths. Nevertheless, the Government has found it necessary to intervene at numerous points either with direct legal action, insistent appeals for voluntary cooperation, or the liberal use of money. A long list of commodities has been made subject to export licenses. Financial transactions have been restricted by the 'freezing' of foreign funds. Through its subsidiary corporations, the Government has undertaken to build new plants and to accumulate supplies of strategic commodities. . . . Provision has been made for the possible seizure of industrial plants, and the establishment of priorities has already begun."

Continuing, *The Survey* states that, "To a considerable extent, these steps represent a national, inevitable and presumably temporary part of the emergency program. In most respects, they stop far short of the controls exercised by the Government in the last conflict, such as direct price-fixing, widespread priorities, and operation of the railroads. Their long-term significance, however, must be judged with reference both to past tendencies and future probabilities. It

must be remembered that the trend throughout the world, including the United States, in recent years has been toward steadily increasing governmental control over economic life; that the conflict and the defense program will undoubtedly necessitate further extension of such control, despite the efforts that will and should be made to hold it to a minimum; and that economic conditions here and abroad after the present crisis is over are likely to present extraordinary difficulties to the resumption of anything approaching free enterprise as it has been known in the past."

Concluding, *The Survey* states in part: "But nothing is to be gained by ignoring the wider implications of the program or by failing to safeguard, as far as possible, against the dangers inherent in it. Even under the most favorable conditions, rearmament will entail a subsequent task of readjustment more difficult, probably, than that now faced in getting the program fully under way. What must be guarded against is a degree of industrial and financial dislocation which would make that readjustment impossible without a permanent disappearance or impairment of the economic liberties for which the temporary sacrifice is being made. There is certainly some reason for the often-repeated question whether democratic action in the present emergency is not in danger of defeating its own ends by inadvertently destroying the free institutions that it seeks to defend."

I. H. Taylor Made Vice President

Irving H. Taylor has been elected vice president in charge of sales of the Michigan Alkali Company, manufacturers of heavy chemicals, E. L. Ford, president, announced today.

Mr. Taylor, whose headquarters will be in New York, entered the chemical business, after his graduation from Yale University, as a salesman for Edward Hill's Son & Co., of New York, sales agents and chemical brokers, in which his father, Eugene M. Taylor, was a partner. Subsequently he succeeded his father as director of sales of the Michigan Alkali Company.

Mr. Taylor is president of the Merchants Chemical Company of New York. He is a former chairman of the board of the United States Alkali Export Association, Inc., a former president of International Carbonic, Inc., and has been prominently identified with the alkali industry for 27 years.

Papyrus Pty., Ltd. To Expand

Papyrus, Pty., Ltd., Burrows road, Sydney, New South Wales, has accepted tenders for the extension of a new section to their factory in which they intend to start the manufacture of art and chromo papers. The buildings and installations of necessary machinery are expected to be completed by July or August of this year, when the company expects to add still another line to their products. It might be mentioned that art paper has so far not been made in Australia, and is, therefore, one of the many new industries now being created in that country.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks, 1941		Corresponding Weeks, 1940	
February 22	90.4	February 24	86.8
March 1	88.9	March 2	83.5
March 8	90.1	March 9	83.4
March 15	89.9	March 16	84.5
March 22	91.8	March 23	85.0
March 29 (Prelim.)	*94.0*	March 30	82.6

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1940	90.2	86.2	83.9	86.3	91.8	93.8	87.1
1941	84.8	89.2	*92.0*	...	...	...	...

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1940	87.2	83.2	88.0	86.9	83.2	87.5
1941	...	...	...	...	...	...

COMPARATIVE YEARLY SUMMARIES

	1935	1936	1937	1938	1939	1940	1941
Year to Date...	68.5	76.9	90.2	67.5	81.3	87.0	*88.3*
Year Average..	70.5	81.3	80.6	72.3	84.9	87.5	...

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS †

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1936	62	67	67	70	69	70	69	75	78	82	80	74	72
1937	80	86	86	88	85	77	66	74	69	65	55	45	73
1938	54	60	61	57	58	56	57	66	66	70	65	59	61
1939	60	67	71	69	64	67	63	72	74	84	81	71	70
1940	71	70	69	70	76	79	72	74	72	79	77	71	73
1941	**75**	**81**	**82**	..	..	..	..	..	..	..	..	..	..

Week ending Feb. 22, 1941—80 Week ending Mar. 15, 1941—82
Week ending Mar. 1, 1941—82 Week ending Mar. 22, 1941—82
Week ending Mar. 8, 1941—80 Week ending Mar. 29, 1941—*84*

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

Expect Large Pulpwood Shipments

CAPE VINCENT, N. Y., March 31, 1941—The opening of the navigation season on the St. Lawrence and Great Lakes within the next few weeks is expected to increase the shipments of pulpwood to the local terminal for the Dexter Sulphite Pulp and Paper Company, the St. Regis Paper Company and the Taggart Corporation. Virtually all of the pulpwood used by the Northern New York paper mills comes from Canada, Michigan or the Adirondacks inasmuch as the war has stopped shipments to this country from Finland and Russia. The bulk of the pulpwood received in Northern New York is from Canadian timber tracts although some is still received from the Adirondacks and the middle western states. Compared to the growth of fifty years ago there is comparatively little pulpwood now available from the Adirondacks although the Gould Paper Company, Lyons Falls and the Finch-Pruyn Company, Glens Falls, still maintain tracts from which they obtain their needs from annual cuttings.

At the Dexter Sulphite Pulp & Paper Company, the supply of pulpwood on hand is sufficient to carry the mills through until some time after the initial shipments from Canada to the terminal here. While the bulk of the company's supply is Canadian it has also been receiving some shipments from the Adirondacks during the winter from the Forestport section. The mills are reported experiencing good business with a heavy demand for their high grade sulphite and substantial orders for their special sulphite papers, of which a considerable quantity is now being exported to the Far East. The St. Regis Paper Company and its subsidiary, the Taggart Corporation, are receiving large quantities of both Canadian and western pulpwood with some from the Adirondacks.

"Please go away!"

. . . PLEADED THE SEASICK MAN ON PAGE 77 TO THE GOURMAND ON PAGE 78

"Impossible!" said the gourmand, wiping some gravy from his chin. "I belong to the next page . . . *show-through,* you know. Here — have a pork chop. Maybe you'll feel better!"

"O-o-ooh!" groaned the seasick man. "I'm *dying!*"

"I can see you've no appetite!" said the gourmand, sympathetically. "What you need are Krebs Pigments!"

"I just want to be alone!"

"That's exactly why you should tell your paper manufacturer about Krebs," the gourmand explained. "These pigments make the thinnest paper opaque . . . clean and white, too! And printing stands out sharply on both sides—just like the raisins in a dish of rice pudding!"

"Ulp . . . !" said the seasick man.

"Did you say 'help'?" asked the gourmand. "Because the Krebs people are a great help when it comes to solving technical pigment problems!"

"E-ex-excuse me," said the seasick man in a weak voice. "I think I'll be g-going . . . "

"Hold on," said the gourmand. "All you have to do is write!"

KREBS PIGMENT & COLOR CORP.

1007 Orange Street . . . Wilmington, Delaware

Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Factors in the Quality Control of Thermoplastic Coated and Waxed Papers*

By T. W. Noble[1]

Abstract

A survey of test procedures utilized in the quality control of waxed and thermoplastic coated papers is presented. The inadequacies of some prevailing test procedures and the lack of others are noted with a discussion of some suggested procedures.

Consideration of the various factors involved in the quality control of thermoplastic coated and of waxed papers requires a critical evaluation of the existing test procedures as related to the products concerned and the improvement or development of these or other procedures. It is believed that an elucidation of the problems of instrumentation and testing which confront the group of converters involved might result in unification and coordination of efforts which would result in the establishment of standard test procedures or the development of testing methods and equipment where these are lacking.

Inasmuch as the primary raw material of the converter is paper itself, a survey of the standard testing procedures, as utilized by the converter laboratory, should precede any further discussion. We might note at this point that unless a test is related to the use to which a material is subjected, the test must, of necessity, lack significance; hence, in a converter laboratory concerned with the production of wrappings which are seldom utilized more than once, little of value would accrue in collecting data on the folding endurance of the base stocks. The folding endurance test tends to measure the durability of a paper and it is seldom, if ever, that the waxed paper converter is concerned with this particular attribute.

Of more particular concern are the standard tests which determine such physical characteristics as basis weight, bursting strength, tearing strength, moisture content and, with certain grades of paper, the opacity and brightness. These physical characteristics are directly related to either the use requirements or performance requirements. In the case of bursting strength and tearing strength, there are no published data on the effect of waxing or coating on these physical characteristics which might well be investigated by an interested group.

Another physical characteristic usually determined is the porosity by means of the Gurley densometer, although the results apparently indicate only variations in the finishing of the stock. Indications of variability, in themselves, are of little value and variations in apparently similar stocks of as high as 200% have been noted, with no further evidence that this variation affected either the use or performance requirements of the stock in question. There has yet to be established a definite relationship between sheet porosity and ink, wax, or coating absorption, vapor transmission rate, or any visually determined property, such as surface gloss. To date there have been only assumed relationships based on vague generalizations. Again, determination of this data might constitute the basis of an investigation by an interested group.

For the determination of sheet caliper we have adopted a thickness gauge which exerts a pressure of one pound over an area of one square inch. From the sheet caliper and basis weight we calculate the bulk density factor or finish number, as we have established fairly definite relationships between this value and coating characteristics.

The determination of the pH of papers utilized as base stocks for coated and waxed wrappings where such wrappings are used on heat sealing machines should be of interest to the converter. We have noted a marked degradation of strength characteristics with a decrease in pH as these papers are subjected to various thermal treatments. This is particularly noticeable in the case of colored papers where the paper producer is inclined to realize the full color strength of various dyestuffs by adding an excess of alum (pH of alum $N/10$ is 3.2). We have not, however, attempted to define limits of pH but believe this might advantageously be considered by an interested group.

In the testing of paraffin wax the melting point, tensile strength, oil and moisture content, color and odor are checked. Either the A.S.T.M. or Saybolt apparatus gives fairly rapid and reproducible determinations of the melting point. A similar statement cannot be made of the present methods for the determination of tensile strength of the wax or the oil and moisture content. In the case of the tensile strength test reproducibility of results on the same sample, by the same operator, is difficult and, between different operators, verges on the impossible.

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Roosevelt Hotel, New York, N. Y., Feb. 17-20, 1941.

[1] Member TAPPI, Chemist, Detroit Wax Paper Co., River Rouge, Mich.

The seasoning of the cast specimens and the atmospheric conditions under which the specimens are tested apparently affect the test to a marked and unpredictable degree. It is understood that interested groups are working on the development of a more reproducible and reliable test method. A published report of their results would be welcomed by the industry.

In the case of the oil and moisture content test, as determined by expression, the value of the present test method has apparently been nullified by improvements in petroleum refining and wax sweating to the point where the method will no longer determine these residuals. For the expression test it is suggested that the solvent extraction test might be substituted, as this method has an apparently higher sensitivity and greater degree of reproducibility.

With experience the odor of paraffin wax can be evalulated by smell and the color can be determined by colorimetric methods or by visual inspection.

The newer thermoplastic coatings or hot-melt materials are subject to considerable variability and nonuniformity due to development work and production problems and it becomes the problem of the individual converter to evaluate these materials. Standard tests such as viscosity determinations, acid number, melting points, etc. are of use but for a practical laboratory test we have developed a small laboratory coater which comprises a thermostatically heated table with a metering knife (Fig. 1). By shimming this knife above the table to various heights, we can control the coat weights for testing. The coated sheet is cooled by passing it over a cold tube. Tests are run on these laboratory coated sheets to determine water resistance, vapor transmission rate, sealing strength, flexibility, and ageing characteristics. Gloss and odor are determined by inspection. During the laboratory coating operation observations are made as to viscosity, thermal stability, cooling characteristics, odor, etc.

Examination of printing ink includes checking against standard samples of top-tone, under-tone, and mass-tone for color strengths and color variations. Other tests include specific gravity determinations, bleeding in paraffin wax, grease proofness, and occasionally, drying characteristics.

It is in the testing of the finished waxed or coated papers that a serious lack of test methods is noted. Basis weight of the finished sheet is checked very carefully as a matter of production control, as are opacity and moisture content. The moisture content can be determined by taking a 5 gram sample of random strips, weighing, drying in the oven at 105 deg. C. for at least two hours and reweighing; or recourse can be made to the Dean-Stark *(1)* or its modification, the Bidwell-Sterling method *(2)* of moisture extraction with xylol. Both of the latter methods are fairly rapid and lend themselves to control. The method of expression of the results raises the problem as to whether the base stock plus coating should be taken to equal 100% or the base stock alone shall equal 100%.

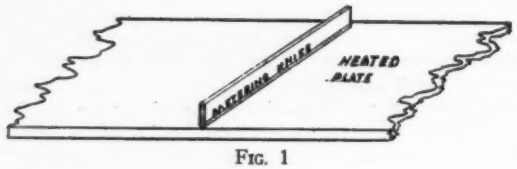


FIG. 1

In the matter of vapor transmission rate, we may well thank the efforts of that group who so assiduously applied themselves to this rather difficult problem and investigated this test, both as to instrumentation and test method, as well as standardizing the expression of results on the "grams per square meter per twenty-four hour" basis. However, even assuming a perfectly sealed package simulates the closed container of the test, we still cannot say that test values will be strictly applicable to packaging materials under service conditions, unless it be known to what extent the package will "breathe" as a result of Charles law. Correlation of test data and service data would be of interest on this point.

With regard to the gloss Podgett *(3)* states:

> The quantitative measurement of gloss is not satisfactory when using an instrument of the Ingersoll type. As pointed out by Bissel, while the Ingersoll glarimeter does quite well for unwaxed paper, the angle of polarization of specularly polarized light varies with the refractive index, and it may happen that a very glossy waxed paper may read low because the refractive index of the wax is lower than the paper and because the specularly refracted light is not entirely polarized.

Although this is a distinct physical limitation to optical systems as embodied in the Ingersoll glarimeter and the Bausch and Lomb glossmeter, we are in correspondence with the Institute of Paper Chemistry on the above point and can only hope that they may offer some advice on this matter; otherwise, visual grading will still remain as the only method of comparing waxed paper for gloss.

The problem of evaluating thermoplastic coated sheets for the phenomenon of blocking has been of paramount concern to the converter. The characteristic of blocking may be defined as that condition of heat and pressure under which two adjacent thermoplastic surfaces unite, with consequent loss of surface gloss and their continuity of surfaces. It has been observed that most converter mills utilizing any method whatsoever to evaluate this characteristic do so by subjecting several thicknesses of paper to a definite pressure at a definite temperature for a given time. The result is usually reported in a statement that the particular paper will pass a blocking pressure of a given number of pounds per square inch for a given number of hours. The units employed for expression will vary widely from one laboratory to another, and usually no attempt is made to determine the actual blocking temperature. We have made an effort to develop a standard semiquantitative test which employs a grading system for appraisal of the surfaces after being subjected to a definite pressure for a stated time interval, and which permits of reasonable reproducibility of results. A paper is being prepared separately on this test method, in the hope that subsequent examination and criticism will result in modifications to the point where it can satisfactorily be accepted by the industry as a standard method. Collaboration and co-operation on this project will be greatly appreciated.

Pressure blocking is manifested when the finished rolls are too tightly wound on the slitting machine and also when internal roll pressures are greatly increased by a slight rise in temperature. This latter point is observed in the case of rolls of waxed paper where the thermal coefficient of expansion of paraffin wax is so great that a slight temperature rise of the roll itself results in setting up unusually high internal stresses.

A test method that has been desired for some time is one which could be employed in evaluating the bonding strength of thermoplastic coated papers after

the paper has been bonded by appropriate thermal and pressure treatment. This test method would be of particular interest where the sealed strength of the bond did not exceed the tensile strength of the paper as, for example, waxed paper. It would not have any particular merit in the case of papers which exhibit a weld type of seal which exceeds the tensile strength of the paper itself as, for example, lacquered papers with a high degree of adhesion of the lacquer to the paper stock. While some individual converters have developed testing devices for this purpose there has been no general adoption of any particular device by the entire industry, either because of the complicated design of the unit which made reproducible results difficult and laborious to attain, or the design was withheld for rather dubious reasons.

We have designed and made a testing device for the sealed strength of papers which operates on the pendulum principle. This unit has been calibrated and the initial experimental work done and we believe that it has the required sensibility and reproducibility of results required by an instrument for this purpose. The results obtained are apparently independent of the speed of operation of the mechanism and results can be checked between different operators. We have not, as yet, run sufficient tests to assure ourselves that the instrument is satisfactory in all respects so are not prepared at this time to offer it for acceptance by interested laboratories. We would, however, welcome co-operation by some other group in order to check the results which we have so far obtained.

In order to obtain satisfactory results, any testing device used for bonding strength is dependent upon samples of bonds which have been sealed under controlled conditions of time, temperature, and pressure. For temperature control we use a thermostatically controlled heating plate but the matter of a controlled pressure has presented somewhat of a problem. At some later date, we hope to be in a position to offer both the sealing strength tester and a sealing device for your consideration.

Assuming the development of the sealing strength tester is brought to a successful conclusion, this instrument will permit the correlation of such fundamental data as the relationship between sealing strength and wax load, melting point of the wax, distribution of wax load, effect of paraffin wax admixtures, and the general characteristics of the base stocks. It is assumed that factual data on the above points might be a better guide to development and control work than the speculative and generalized relationships which have been assumed to date.

The matter of distribution of the wax throughout the sheet has been of interest to several converters who have worked out individual test methods. The results obtained, however, will vary from one converter to another, apparently dependent on minor variations of the test procedure and to a greater extent on the interpretation of "end point" after removal of the surface wax by mechanical means. We have employed the following method with satisfactory results for some time and offer it for your comment.

A series of three adjacent strips 2 by 18 inches are cut from the sample to be tested, two or more sets preferably being used. The surface wax is removed from two strips of a set, the top wax from one and the bottom wax from the other, by the following means. A razor blade with a long cutting edge is mounted in a vertical position by means of a wooden holder. The paper strip is then drawn over this blade, and at right angles to it, in a manner to scrape the wax from at least 12 inches of its length. Tension is maintained against the blade by depressing the sheet below the plane of the cutting edge and holding it taut. The "end point" of scraping is arbitrarily selected as being that point at which fibers from the paper itself first appear in the wax scrapings. The wax is then removed from the opposite side of the other strip, after which the two strips and a strip which has not been scraped are superimposed one on another and samples cut from all three by using a template 6.1 by 1.5 inches. By cutting all three samples at once, errors in sample size are reduced to a minimum variation. The samples are then weighed on an analytical balance, the decimal point in the gram value being removed two places to the right to read directly in pounds per ream, 24 x 36—480 ream basis. From the values obtained, a simple arithmetical calculation will show the wax distribution on the surface of the sheet. As a further check, the samples can be dewaxed and reweighed to determine if too much paper fiber has been removed from the scraped sample.

For determining waxed and dry basis weight on samples submitted by the sales department, we use the above template size and weigh on the analytical balance before and after a simple extraction with carbon tetrachloride. Our extraction method is nothing more than solvent extraction using a modified form of the Underwriter's cup. This is in vivid contrast to the involved and laborious procedure as given in TAPPI Standard T 405 m-40, and yet yields entirely satisfactory results. Justification of the TAPPI method is made on the basis that this method removes saponifiable matter in the treatment with alcoholic potassium hydroxide; hence, would remove any rosin size present in the base stock. To check the latter point we communicated with three of the largest producers of waxing stocks to obtain data on the amount of rosin sizing present in their papers. In decreasing order of their tonnage on these grades they reported as follows: mill A, none; mill B, 1%; and mill C, 1.5%. In the case of stocks from mill A, there is no advantage of the TAPPI method over simple extraction. In the case of mills B and C, where their stocks are waxed to a full wax load (50% of dry basis) and assuming sample size to be correct, it would appear that time and further developments in the microbalance would justify the TAPPI test for distinguishing between two heavily waxed paper stocks.

TAPPI Standard T 405 m-40 has undoubted merit in the case of very lightly waxed stocks or wax sized sheets but, if the test is recommended particularly for these grades, it is suggested that some modification of the title of the test in question be made which would be indicative of this recommendation.

In determining the melting point of paraffin wax from an unknown sample sheet, we use both the capillary tube method and a flotation ring method where a ring of the unknown paraffin is formed on the bulb of a large bulb thermometer. This bulb is then immersed in a double jacketed water bath and the temperature allowed to rise 1 deg. F. per minute until the ring floats free of the bulb. This point is considered the melting point, a correction being made from a sample of known melting point which is determined simultaneously by the same method.

The question of sheet flexibility is of paramount importance to converters who are supplying packaging materials for use on automatic wrapping machines. On these wrapping machines the flexibility of the sheet governs the ease of folding as well as determining the effective leverage which a sheet can exert against the fold and tend to reopen the folded area. To date no testing device has been developed which will determine this flexibility factor with a degree of sensitivity exceeding that which the wrapping machines themselves can distinguish. Inasmuch as such a test is desired for a control method, the testing procedure should not be so time consuming that it defeats the purpose of the test. The test should be capable of determining flexibility, as flexibility, rather than read it as an inverse of stiffness, unless it can be demonstrated that the inverse of stiffness is flexibility. The latter point appears to be an assumption which has no basis in fact.

Assuming that a satisfactory testing device for sheet flexibility were developed, certain fundamental data could be tabulated on the relationship between flexibility and other factors, such as wax load, wax distribution, moisture content, and possibly, the physical characteristics of the base stock, itself.

The development of instruments for specific tests and the development, standardization, and adoption of testing procedures with a standardized expression of results will not only materially aid the industry in development but will aid the individual converters in a clarification and possible solution of their problems. It would appear that this can be accomplished by a unification and coordination of effort by the various converters and need not involve any sacrifice of individuality, so far as any individual converter is concerned.

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(1) Dean, E. W. and Stark, D. D., "A convenient method for the determination of water in petroleum and other organic emulsions", *Ind. Eng. Chem.* 12:486 (1920).
(2) Bidwell, G. L. and Sterling, W. F., "Preliminary notes on the direct determination of moisture", *Ind. Eng. Chem.* 17:147 (1925).
(3) Padgett, *Oil Gas J.* (Feb. 3, 1938).

K. O. Elderkin to Manage Crossett

W. E. R. Covell, general manager of Crossett Arkansas Companies announced today the appointment of K. O. Elderkin as manager of Crossett Paper Mills, effective April 1, 1941.

Mr. Elderkin has been assistant manager under E. A. Charlton, who recently resigned. Mr. Elderkin has had long and varied experience in the paper industry. He has served as general manager of the International Power and Paper Company of Newfoundland, which has one of the largest paper mills on the continent. He also served with the Mersey Paper Company and the Abitibi Power and Paper Company. He is a graduate in Mechanical Engineering from McGill University in Montreal, Canada. Mr. Elderkin's knowledge of high speed paper machines, and latterly his position as production manager of Crossett Paper Mills assures the Crossett company of the maintenance of its position in its field.

Norman Scott Returns from Florida

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., April 4, 1941—Norman Scott New England representative of W. C. Hamilton & Sons, Inc., Miquon, Pa., has returned from a month in Florida.

New TAPPI Members

The executive committee of the Technical Association of the Pulp and Paper Industry has elected the following to membership:

John A. Beaujean, chemist, Southern Kraft Corporation, Panama City, Fla., a 1941 graduate of Mass. Institute of Technology.

John Beck, analytical chemist, Hollingsworth & Whitney Company, Mobile, Ala., received his Ph.D. degree from Purdue University in 1937.

Frederic E. Brinnick, chemist, Lowe Paper Company, Ridgefield, N. J., a 1939 graduate of Tufts College.

C. Purvis Idyll, graduate student, Mass. Institute of Technology, Cambridge, Mass., a 1935 graduate of the University of British Columbia and was formerly with Trinidad Leaseholds Ltd., Pointe-a-Pierre, Trinidad.

Uno Lowgren, chemical engineer, American Defibrator, Inc., New York, N. Y., graduated from the Royal Institute of Technology in Stockholm, Sweden.

T. S. Morse, service engineer, Hercules Powder Company (Canada Ltd., Freeman, Ont.), a 1936 graduate of McGill University and was formerly with Combustion Engineering Company, Chicago, Ill.

Robert H. Mosher, student, Institute of Paper Chemistry, Appleton, Wis., a 1940 graduate of Mass. State College.

Gustavo Prado, managing director, La Papelera Peruana, Lima, Peru, attended the Peruvian University.

John F. Reardon, chemist, Valley Paper Company, Holyoke, Mass., a 1936 graduate of Holy Cross College.

Miguel A. Rosales, chemical engineer, Central Azucarera de Bais, Bais Central, Oriental Negros, P. I., a 1931 graduate of Lotran College.

Carl O. Skoggard, student, New York State College of Forestry, Syracuse, N. Y.

Glenn H. Smathers, pulp mill superintendent, Champion Paper and Fibre Company, Pasadena, Texas.

Philip B. Taft, technical sales, Resinous Products and Chemical Company, Inc., Philadelphia, Pa., a 1936 graduate of Middlebury College and was formerly with the General Chemical Co., Marcus Hook, Pa.

Clinton K. Textor graduated from the University of Wisconsin in 1916 and was formerly with the Riegel Paper Corporation and the Northwest Paper Company.

Wilfred R. Tutton, chemist, Toronto Star Ltd., Toronto, Ont., a 1936 graduate of the University of Toronto and was formerly with the Abitibi Pulp and Paper Company, Iroquois Falls, Ont.

John C. Wilson, technical assistant superintendent, Hammermill Paper Company, Erie, Pa., a 1934 graduate of the University of Maine.

John Younger, scientific aide, Northern Regional Research Laboratory, Bureau of Chemistry and Engineering, Peoria, Ill., a 1937 graduate of Lawrence College.

Albert P. Yundt, student, Institute of Paper Chemistry, Appleton, Wis., a 1939 graduate of the Georgia School of Technology.

Comparison of Water-Ground Natural and Precipitated Calcium Carbonates for Paper Coating*

By A. R. Lukens[1], C. G. Landis[2], and T. G. Rochow[3]

Abstract

The properties of a new type of calcium carbonate pigment for use in paper coating are described. It is compared with a commonly used precipitated calcium carbonate as to physical properties, and results obtained in typical book paper coating formulations. Advantages and suggested fields of application of the new pigment are discussed.

The use of calcium carbonate in paper coating formulas has become quite common. The precipitated carbonates commonly used give a much lower gloss than clays, but the better color and good hiding power of these carbonates, together with moderate cost, have contributed to considerable usage. Another factor assisting in this development has been the commercial introduction of high finish domestic coating clays which enable the production of high gloss coated paper, containing appreciable proportions of carbonate pigments, at a lower net cost than by the use of satin white-clay combinations.

No one pigment meets every demand for all types of coated paper. Sheets properly made for lithographic work must meet different requirements from those devised for typographic processes. Similarly, papers for gravure reproductions make still different demands. Naturally, the paper coating formulator must know the fundamental characteristics of the various pigments available, so that they can be compounded to give the desired sheet properties.

One of the most important characteristics determining the value of a pigment for coating is its adhesive requirement—i.e., the amount of adhesive required to bind the pigment to the raw stock so that the coating will not pick off during printing. One of the drawbacks to the employment of precipitated calcium carbonates is the fact that these pigments, if sufficiently fine in particle size to be suitable for use in high-grade printing paper coatings, require a high proportion of adhesives.

This paper describes a new type of calcium carbonate pigment for use in high-grade paper coatings. This new pigment has most of the desirable features of the commonly used precipitated carbonates, but has a much lower adhesive requirement. This pigment ordinarily will be blended with large proportions of various coating clays, or with moderate proportions of precipitated carbonates, and should not be considered as a substitute for either.

The new product is made from pure, natural calcite rock by a special process involving water-grinding and mechanical separation to obtain suitable particle size and other characteristics. The special water-ground natural carbonate is known under the trade name Cal-Micro. This same product is known to the paint and rubber industries as Atomite.

Nature supplies large quantities of pure calcium carbonates in rock form, but it is necessary to convert rock of suitable purity and color into particles of proper size to give the desired results in paper coating. The two principal methods are chemical reduction and mechanical reduction.

Briefly, the chemical reduction process is usually as follows: limestone is burned to lime and this is hydrated to calcium hydroxide. The calcium hydroxide can be converted to calcium carbonate simply by reaction with carbon dioxide gas; or, sodium carbonate can be added to the calcium hydroxide to form sodium hydroxide and calcium carbonate as the by-product; or else the calcium hydroxide can be converted to calcium chloride and then to calcium carbonate by reaction with a soluble carbonate.

There are many problems involved in the production of precipitated carbonates of suitable particle size, and chemical and physical properties. Such problems include the complete removal of free lime, sodium hydroxide, or other residual chemicals that would be harmful. The chemical and physical conditions during precipitation must be controlled very carefully so that satisfactory particle size and shape are obtained. The possible variations in processing, and the effects of such variations, are indicated by inspection of some of the patents issued *(1, 2, 3, 4, 5, 6)*.

The mechanical process is comparatively simple and is susceptible to good control. Purity can be assured by using pure calcite rock containing 98-99.5% or more of calcium carbonate. The rock can be subdivided by grinding by various means. The method most easily controlled is grinding in water, during which grinding the particles are subdivided to a considerable extent along natural cleavage planes rather than entirely by conchoidal fracture. By such a procedure, supplemented by additional mechanical separation, the percentage by weight at 1, 3, and 5μ particle diameter will vary less than 1% from preset standards. This precision is significant to the consumer.

There are many grades and types of precipitated carbonates used by paper coaters. Various paper mills and chemical manufacturers make this pigment, each probably using raw materials and processing methods to suit their own requirements. For purposes of this study it was necessary to select a single typical precipitated carbonate for direct comparison

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* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Roosevelt Hotel, New York, N. Y., Feb. 17-20, 1941.

[1] Member TAPPI, Research Director, Thompson, Weinman & Co., Cambridge, Mass.
[2] Member TAPPI, American Cyanamid Co., Stamford Research Laboratories, Stamford, Conn.
[3] American Cyanamid Co., Stamford Research Laboratories, Stamford, Conn.

with the special water-ground natural carbonate. It should be understood that all subsequent mention of precipitated carbonates refers to the selected representative sample, unless explicitly stated otherwise. Some physical properties of the two pigments are summarized in Table I.

TABLE I.—COMPARISON OF EMPIRICAL PHYSICAL PROPERTIES

	Precipitated calcium carbonate	Water-ground calcium carbonate
Reflectance [1] %	98	94
Apparent density [2], cc./40 grams	115	61
Oil absorption [3], grams/100 grams of pigment	26	10
Specific gravity [4]	2.80	2.80
Specific gravity [5]	2.930	2.715
Refractive index (mean) [6]	1.62	1.60
Particle size: Range, μ	Up to 7	Up to 6 x 9
Average [7], μ	3	2 x 3
Shape of particles	Rough spherulites	Rhombs & fragments
Allotropic form	Aragonite (trace of calcite)	Calcite

[1] Powders screened through 35-mesh, packed into a glass cell and compared with pure magnesium carbonate packed in a similar cell, by means of the General Electric recording spectrophotometer. *See* Fig. 1.
[2] An empirical test in which the volume occupied by 40 grams of the dry pigment was determined after following a standard packing procedure (7).
[3] The oil absorption was determined by the rub out method commonly employed in the paint industry. K.V.O. linseed oil was used, the result being expressed as grams of oil per 100 grams of pigment.
[4] These specific gravities are empirical values obtained by the sink-and-float method employing heavy liquids of standardized specific gravity.
[5] A.S.T.M. standard method D 153-39.
[6] The values for "mean refractive index" were obtained by the usual microscopical immersion method, modified by using natural (unpolarized) light.
[7] The average particle size was taken as the dimensions of a particle estimated by inspection to be the "average according to percentage by weight".

Physical Properties

The color or reflectance values for several typical paper coating pigments, including the two carbonates mentioned in Table I, are shown in Fig. 1. The carbonates and blanc fixe are appreciably higher in overall reflectance than the china clays. The difference is much greater in the blue end of the spectrum, making the reflectance lines more nearly horizontal. In other words, the carbonates are much "whiter" than the clays.

The color of pigments determined in this manner may not correlate in all cases with results obtained in finished paper, because of modifications of hiding and light reflecting power in the actual coating layer. However, the color comparisons of the pigments themselves do give a rough guide as to the color properties obtained in actual use. The precipitated carbonate included in Table I has a reflectance value as high as any commercial grade of precipitated carbonate that has been examined by the authors during the past five years. Many of the commonly used precipitated carbonates have reflectances several per cent lower.

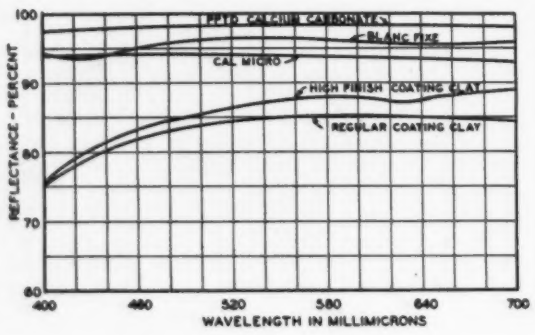


FIG. 1
Color Curves of Various Paper Coating Pigments as Determined with the Recording Spectrophotometer.

The results of mechanical bulking and oil absorption tests, as given in Table I, are indicative of the wide differences in physical properties of the particles in the two types of pigments.

The table shows that the "average" particle-size is about the same for both samples, but that there is a difference in particle shape. The water-ground carbonate is composed of *solid* fragments and cleavage rhombs with relatively smooth surfaces, whereas the precipitated carbonate is composed of *porous* particles, each of which is a crystalline aggregate of a great number of tiny prisms, oriented more or less radially to form a crude sphere of extremely rough surface. This difference in particle structure between the carbonates accounts for the greater specific surface of the precipitated carbonate and is manifested in its higher bulk, oil and water absorption, and casein requirement.

Microscopical Examination

Most of the physical properties of any crystalline substance are related with the configuration of its ions or molecules in its space lattice. If a single chemical compound is allotropic—i.e., it exists in more than one type of space lattice—the compound will have as many values for a single physical property as there are allotropic forms. Calcium carbonate has at least two, and possibly three allotropes: calcite (trigonal), aragonite (orthorhombic), and possibly "vaterite" or μ-$CaCO_3$, which is discussed in various works *(8) (9) (10)*, but whose existence is not yet universally accepted.

Some relevant properties of the different allotropes of $CaCO_3$ are given below:

	Calcite	Aragonite	"Vaterite"
Crystal system	Trigonal	Orthorhombic	
Habit	Rhombs	Prisms, spherulites	
Refractive index[1]	$\omega = 1.6585$	$\gamma = 1.6854$	$\omega = 1.550$
	$\epsilon = 1.4864$	$\beta = 1.6810$	$\epsilon = 1.650$
	$N_{ave.} = 1.602$	$\alpha = 1.5300$	$N_{ave.} = 1.580$
		$N_{ave.} = 1.632$	
Hardness (Moh's scale)	3	3.5-4	
Specific gravity	2.71	2.58	2.54

Note 1. $N_{ave.} = \frac{2\omega + \epsilon}{3}$ or $\frac{\alpha + \beta + \gamma}{3}$

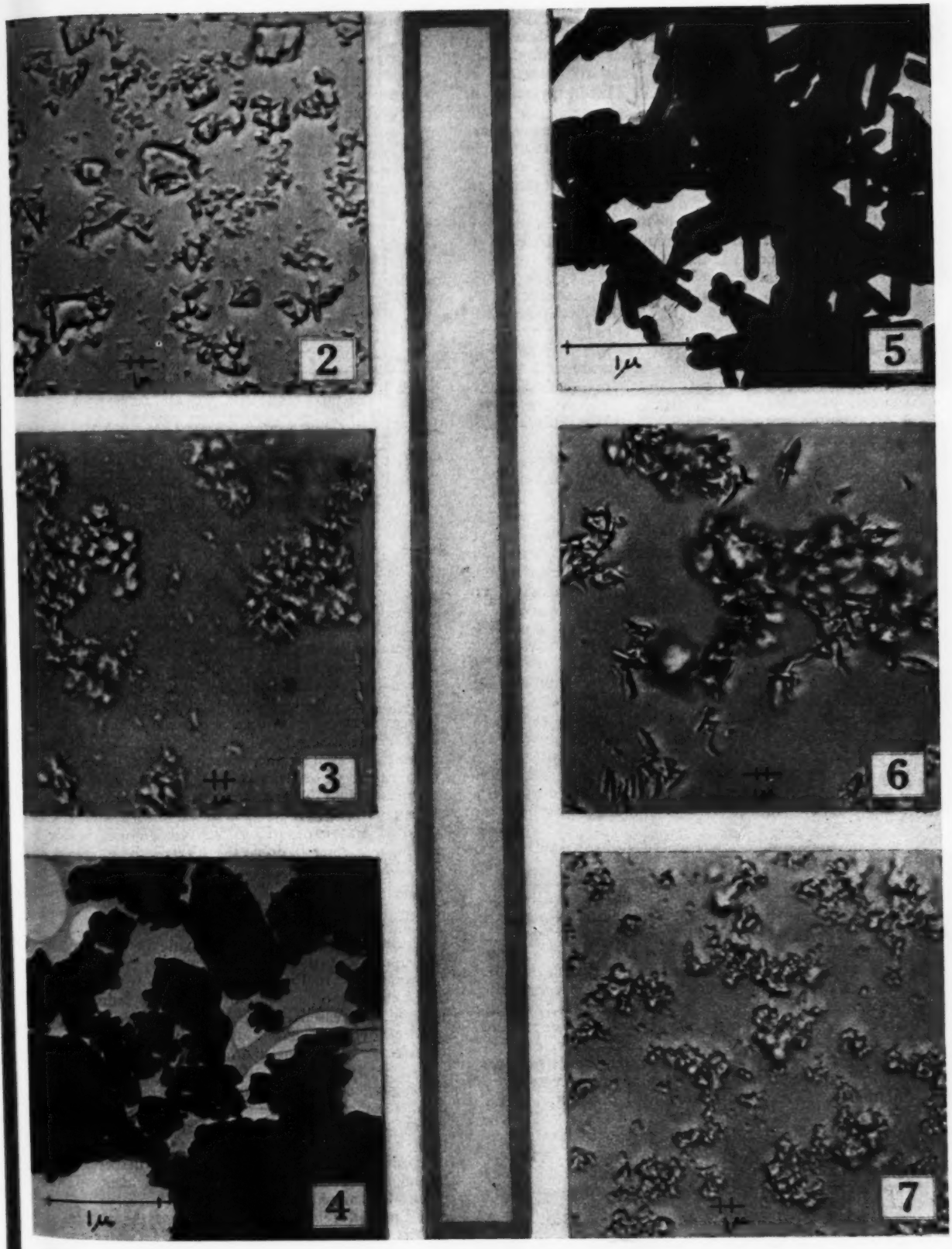
The shape of the particles in a pulverized product is dependent both upon the space lattice and the method of pulverization. Calcite has a natural cleavage parallel to the faces of a rhomb. Cal-Micro is produced by grinding calcite in such a way that a great proportion of the particles are rhomb-shaped. The rest of the particles are fragmental in shape but with rounded corners and edges, as shown in the photomicrograph, Fig. 2, and indicates that the faces are relatively smooth because their edges are shown as fairly sharp even lines.

The shape of a precipitated particle is influenced by the space lattice and by the conditions of precipitation and storage. The shape of the particles in

FIGS. 2 TO 7

For photomicrographs see opposite page.

FIG. 2. Photomicrograph of Cal-Micro (Same Sample as Described in Table I.) *2000* ×
FIG. 3. Photomicrograph of a Precipitated Calcium Carbonate. (Same Sample as Described in Table I.) *2000* ×
FIG. 4. Electron Micrograph of Cal-Micro (Same Sample as Fig. 2.) *24000*×
FIG. 5. Electron Micrograph of a Precipitated Calcium Carbonate. (Same Sample as Fig. 3.) *24000*×
FIG. 6. Photomicrograph of Another Type of Precipitated Carbonate Used in Paper Coating. *2000* ×
FIG. 7. Photomicrograph of Another Type of Precipitated Carbonate Used in Paper Coating. *2000* ×



FIGS. 2 TO 7

For descriptions of photomicrographs see opposite page

the precipitated carbonate included in Table I is shown in Fig. 3. The photomicrograph shows that the particles are crudely spherical with rough contours, indicating that the surfaces are irregular in elevation and extensive in area. These properties are manifestations of the structure of the particle which is composed of a huge number of tiny prisms interlocked, presumably by crystalline forces (as multiple twins). The result is a porous interior and a rough exterior. These prisms are so small that they tax the resolving power of the optical microscope. Some of them can be seen in the photomicrograph, but they have been observed much more distinctly in electron micrographs [4] taken at 24,000 diameters.

Figures 4 and 5 show electron micrographs of the same pigments which are shown by photomicrographs in Figs. 2 and 3, respectively. The electron micrograph of water-ground carbonate (Fig. 4) confirms the optical microscopical observations, that this pigment is composed of both irregular and rhomb-shaped fragments. The contours of these fragments are relatively even, indicating that the surfaces are correspondingly smooth and the particles substantially nonporous.

The electron micrograph of the precipitated carbonate (Fig. 5) shows that the pigment particles are really aggregates of tiny elongated prisms, massed together to form a porous internal structure and an extremely rough external contour. It is evident that such particles offer an enormous surface to be wetted by fluids such as water, oils, and adhesive solutions.

Figures 6 and 7 are photomicrographs of two other typical commercial precipitated carbonates. Figure 6 is composed of small, elongated particles about 0.5 μ wide and 2-3 μ long. These elongated particles occur in aggregates about 5 to 8 μ in diameter. Figure 7 shows that this sample contains particles which are elongated but smaller than those of Fig. 6.

The individual particles of water-ground carbonate are solid, clean-surfaced, and microscopic in size. To understand how they differ from similarly minute particles of precipitated carbonates, a clear distinction must be made between the descriptive terms *absorb* and *adsorb*. These words may be defined as follows:

absorb = to drink in, to suck up, as a liquid by a solid, a sponge, or fullers earth.
adsorb = to condense and hold a gas, liquid, or solid upon the surface of a solid or liquid.

It is indicated that precipitated carbonates, because of spherulitic structure of the particles, or presence of a large number of small particles with resultant increase in surface area, or the presence of agglomerates of small particles, tend to present much more surface which in paper coating must be covered with adhesive to give good coat adhesion. Relatively speaking, the precipitated carbonates *absorb* a large amount of casein, while the water-ground carbonates of similar over-all particle dimension present clean surfaces of limited area which *adsorb* a much lower quantity of this adhesive per unit weight of pigment.

It is possible that other factors are involved in the decidedly lower casein requirement of the water-ground natural carbonate. For example, a recent patent *(11)* covers the wet grinding or rubbing of precipitated carbonates as a means of moderately

[4] It is believed that this is the first time that the electron microscope has been used in conjunction with the study of papermaking and paper coating pigments. This instrument has been available such a short time that only a preliminary indication of its value in this connection has been obtained. It is expected that a more extensive investigation will undoubtedly yield both theoretical and practical information of considerable value.

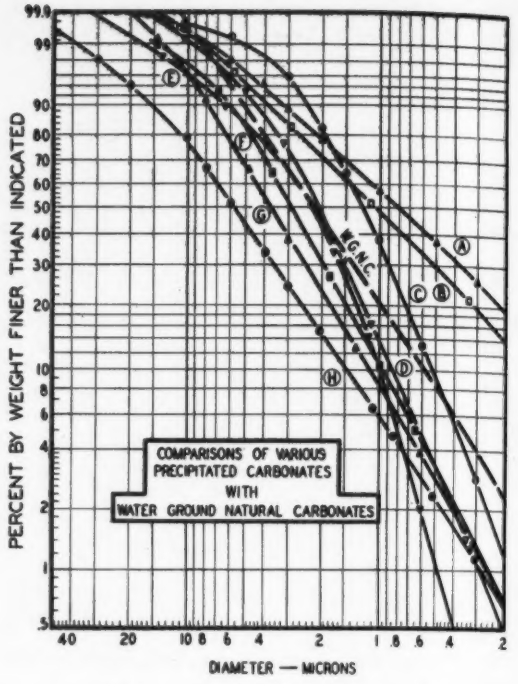


FIG. 8
Particle Size Distribution Curves for Various Types of Paper Coating Calcium Carbonates

lowering adhesive requirements. The exact reason for such a result is unknown.

Another point of interest in comparing precipitated and natural carbonates is with regard to the presence of residual chemicals. It seems quite logical that precipitated carbonates would tend to hold considerably larger amounts of residual chemicals in the pores and interstices of their spongy aggregates. These residual chemicals might readily promote thixotropic gelling, as a result of reactions with the casein, leading to aggravation of brush marking and other difficulties. When natural carbonate is made into a slurry with distilled water of pH 7, stirred vigorously for 5 hours, and then filtered, the filtrate shows a pH of 7.1 to 7.2. This indicates that soluble alkalies are not present.

Particle Size Analyses

Particle size analyses were made in another way, to supplement the data obtained by microscopical observations. In Figs. 8 and 9 are shown the particle size classifications obtained by a sedimentation method, expressed in two different ways. The procedure used was based upon work done by Casagrande *(12)* and consisted of dispersing the pigments mechanically in water, with the aid of a chemical dispersing agent, and determining by means of a hydrometer the proportion of particles remaining in the upper layer of liquid after various sedimentation periods. Results obtained by the sedimentation method depend upon the degree of dispersion obtained, and such results may not be identical with those determined by microscopical observation, because of differences in dispersion of the aggregates.

The sample labeled W. G. N. C. (water-ground natural carbonate) corresponds to the one shown in Fig. 2. Sample F, although not from the same exact sample lot, corresponds to the precipitated carbonate

shown in Fig. 3. The other samples represent calcium carbonates from different sources, all of which have been used in paper coating. The large observed differences indicate that the carbonate pigments used by various paper coaters are by no means uniform as to average particle size or particle size distribution.

These variations indicate that the choice of a suitable particle size distribution for a carbonate pigment to be used for paper coating might well be a subject for considerable investigation. Obviously if some of the particles are too large, satisfactory results will not be obtained. It has been stated *(13)* that a normal thickness of the coating on a finished coated book paper is approximately 0.0006 inches. This is equivalent to about 15 μ. It will be noted that the largest particles in the natural carbonate have a "diameter" of about 10 μ, indicating that the maximum particle size is within a safe limit.

Little data have been published with regard to the proper minimum particle size for paper coating pigments, although work in other fields *(14)* indicates that the presence of particles appreciably less than 0.25 μ tends to cause a decrease in the reflectance or brightness. Carbonates A and B, Fig. 8, gave a dull or grayish coating when applied to paper in the usual way. It will be noted that these pigments contain about 19 and 14%, respectively, of particles below 0.2 μ in diameter. Other factors have a considerable bearing on the selection of a minimum particle size limit, such as adhesive requirement, dusting tendency, etc. Naturally, one would expect the adhesive requirement to increase enormously with the presence of a large proportion of particles of small size.

Although comparatively easy to select suitable maximum and minimum particle size limits for a paper coating pigment, it is a difficult problem to predict theoretically the effect of varying particle size distributions between set maxima and minima of about the values indicated previously as being desirable. It would seem reasonable, however, to assume that a mixture of large, medium, and small particles would give better results than particles of a uniform size. For example, the builder of concrete pavements carefully chooses a mixture of rocks of varying sizes. An aggregate is thus obtained which develops a firm structure and does not require an excessive amount of cement because of large pore spaces.

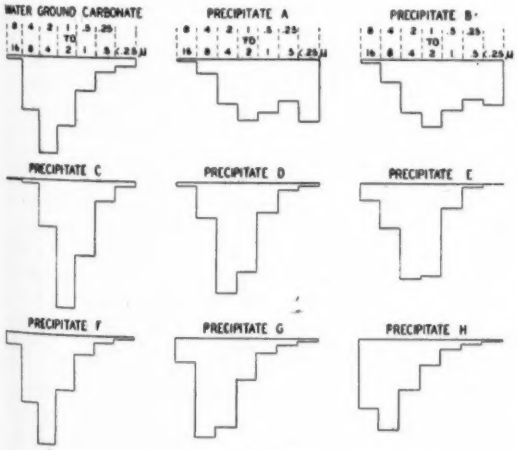


FIG. 9
Particle Size Distribution Charts of Various Types of Paper Coating Calcium Carbonates

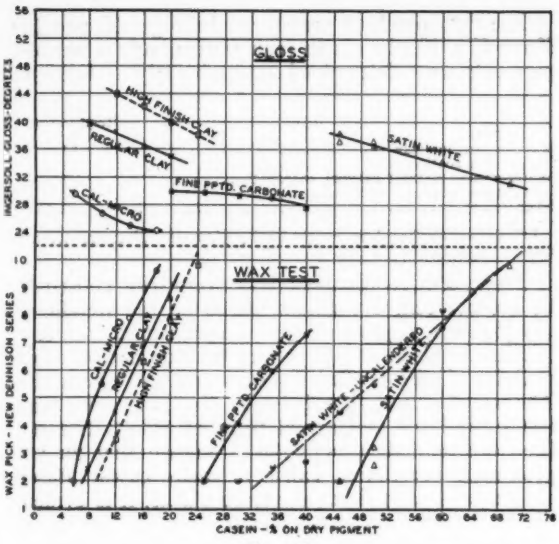


FIG. 10
Gloss and Dennison Wax Pick Tests on Sheets Coated with Typical Pigments and Varying Proportions of Casein

It will be noted that the distribution of particle sizes of water-ground carbonate fulfills the concept given above, as the greatest percentages by weight are of medium size, with decreasing percentages as the sizes approach the maximum and minimum size limits. These percentages can be controlled quite accurately. However, it is recognized that there will seldom be only one pigment in a paper coating formulation. Naturally, the properties of any other pigments must be considered in drawing conclusions as to proper particle size distribution in the mixture.

Coating Trials

The detailed methods used for evaluating the paper coating properties of the two pigments were described by Landes *(15)*. The procedure in general consisted of dispersing the pigments thoroughly in water and adding appropriate amounts of casein solution. After additional mixing the colors were screened and observations made as to grit content and viscosity or consistency. The colors then were applied to small sheets of a commercial coating raw stock by means of a knife-type sheet coater, and the paper dried and supercalendered. The raw stock used was a fairly hard all-sulphite sheet, beater sized with a moderate amount of rosin. After conditioning, the finished sheets were tested for gloss, reflectance, wax pick, smoothness, printing ink receptivity, and other properties. Visual and microscopical inspections were made for gloss, mottle, and surface smoothness.

As a start in comparing the coating quality of the two types of calcium carbonates, casein requirements and gloss properties were determined for these two materials, as well as for several other commonly used pigments. A series of coating colors was prepared from each of the pigments, using varying proportions of casein to pigment. The finished coated sheets were tested for strength of the coat-to-paper bond by means of wax pick tests, and for gloss with the glarimeter.

The data obtained are shown in Figs. 10 and 11. From Fig. 10, the casein requirements of the various pigments were determined approximately as follows:

Pigment	Casein Requirement % [1]
Regular coating clay	13
High finish coating clay	15
Water-ground natural calcium carbonate	9
Precipitated calcium carbonate	32
Satin white	45–55

[1] % dry casein based on weight of dry pigment. Moisture determinations made at 100-105 deg. C.

The casein requirement was arbitrarily chosen to be the per cent dry casein, based on the weight of dry pigment, required to give a Dennison 5 wax test.

The Dennison and Case wax tests do not correlate well for all the pigments shown in Figs. 10 and 11. The exact correlation between the respective wax test procedures and actual printing results has not been determined, although it is known that an approximate correlation exists in many cases. Based on the tests with either series of waxes, it is evident that natural carbonate has an exceptionally low casein requirement compared with the precipitated carbonate.

The results obtained with 100% satin white pigment may be subject to some doubt. The casein requirement as indicated appears to be slightly higher than the figure used by some coating mills (about 40%). It is believed that the gloss test results for satin white, as shown in Fig. 10, may not represent the values actually obtained in commercial practice. It is indicated therefore that these properties of satin white should be checked in the laboratory in more detail. It is possible that the results would be modified if the satin white were blended with other pigments, with lower ratios of casein to total pigment, as it is known that satin white may react peculiarly with casein under certain conditions. Other factors, undoubtedly having some effect, are the calendering pressure and other operating conditions.

In order to check the properties of the carbonates in typical commercial coating formulas, various mixes were prepared as shown in Table II. Included are coating color tests and finished sheet tests.

In preparing the coating colors, those containing water-ground calcium carbonate can be made at 5 to 10% higher solids contents and still have the same fluidity as the colors containing the precipitated carbonate. In dispersing the pigments prior to addition of the casein, solids contents of the mixtures containing natural carbonate are 5 to 25% higher.

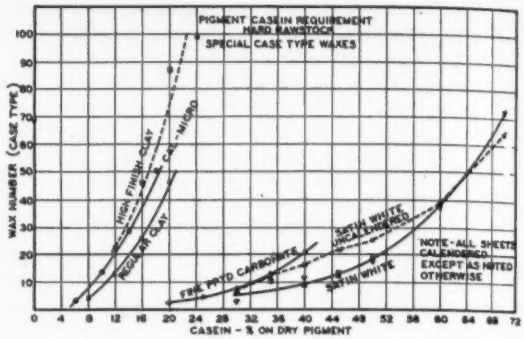


Fig. 11

Case Type Wax Pick Tests on Sheets Coated with Typical Pigments and Varying Proportions of Casein

This difference in solids contents of the finished colors should make possible appreciable savings in coated paper drying costs, the amount of the saving depending primarily on the proportion of water-ground natural carbonate used in the formula. This fact is of considerable practical importance as emphasized by Massey *(16)* and many others.

The dispersibility of the water-ground carbonate is good, because in every case the finished colors containing this pigment showed a lower grit content.

In order to permit a fair comparison of the finished sheet properties, all of the coating colors referred to in Table II were adjusted as to casein-pigment ratio so that approximately identical wax pick tests were obtained on the coated and calendered sheets. By this procedure, the various pigment combinations could be evaluated in a manner comparable to normal commercial use conditions.

In each of the five comparisons shown in Table II, one of the formulas includes water-ground carbonate and the other either precipitated carbonate or some other common pigment combination. It is

TABLE II.—COATING COLOR PREPARATION AND SHEET TEST DATA

Trial	334	322	342	265	266	301	302	283	286	289	290
Pigments (% of total pigment wt.)											
Regular coating clay	100	..	..	50	50	35	35	..	70	..	..
High finish coating clay	..	..	..	..	..	35	35	50	..	45	45
Cal-Micro	..	100	..	50	..	30	..	50	..	45	45
Precipitated calcium carbonate	..	..	100	..	50	..	30	..	..	..	45
Satin white	..	..	..	..	..	..	..	..	30	10	10
Formula Data and Coating Color Tests											
Dry casein—% on dry pigment	12.0	10.0	30.0	12.0	24.0	11.0	15.0	11.0	27.0	16.0	25.0
Dry pigment as mixed, %	55.7	62.4	40.8	62.4	46.4	64.4	58.7	62.3	38.7	56.6	47.6
Solids—color as prepared, %	44.6	50.0	30.9	48.5	35.0	50.2	44.3	49.7	30.6	42.7	35.0
Solids of color after dilution, %	42.0	47.3	30.9	43.8	35.0	45.8	40.5	42.6	30.6	42.7	34.2
Casein alkalies—%: soda ash	10.0	10.0	10.0	12.0	12.0	10.0	10.0	10.0	10.0	10.0	10.0
ammonia (26° Be.)	2.5	2.5	2.5	...	...	2.0	2.0	2.0	2.0	2.0	2.0
borax	...	...	...	3.0	3.0	...	...	...	...	...	...
Color viscosity—sec./100 rev. (100 g. wt.)[1]	14.0	14.1	16.0	14.8	20.2	25.5	20.7	15.5	13.6	21.1	16.0
Temp. as tested for viscosity, °F.	77	76	78	83	81	81	80	82	87	88	88
Grit on 100 mesh (based on dry color solids), %	0.01	0.07	0.18	0.01	0.09	0.02	0.58	0.00	0.12	0.10	0.16
Calendered Sheet Tests											
Coat wt.—lb. basis (25x38—500)	14.9	15.1	14.5	16.2	15.4	14.9	14.2	16.8	15.7	15.3	14.7
Gloss (Ingersoll), deg.	38.6	26.7	29.3	35.7	37.7	38.5	39.3	40.8	39.0	39.0	38.0
Reflectance—B. & L., %[2]	93.0	97.7	98.8	88.4	89.4	88.5	90.0	90.2	91.1	90.7	89.8
Opacity—B. & L., %	92.3	92.1	93.0	96.6	96.3	96.0	96.5	97.4	97.3	97.1	96.8
Ink receptivity—K. & N., %[3]	32.5	28.7	22.7	33.2	27.8	32.0	27.5	30.6	26.4	30.9	32.4
Wax pick—Dennison (new series)	4.5	5.5	4.1	5.8	5.2	5.0	5.0	5.2	5.0	7.9	7.8
Wax pick—Case (or K. & N. type)	15	13	8	15	15	20	15	23	24	45+	45
Smoothness (Gurley), sec.	36	42	44	..	..	88	89	85	76	98	61

[1] Determined on Industro-Scientific Co. rotating cup type viscometer.

[2] Reflectance values determined with the Bausch & Lomb opacimeter. It should be noted that these values are only relative. The standard of comparison used in this method has appreciably lower than a 100% reflectance, because of the cover glass over the magnesium carbonate block.

[3] Refers to reflectance of an inked spot, after contact with K & N test ink for 2 minutes and removal of excess ink. The reflectance figures were obtained with the B. & L. opacimeter. It should be noted that the actual ink receptivity of the paper is inversely proportional to the values given.

indicated by the sheet quality tests that in each case (except in the trials where single pigments were used) the coating containing the natural carbonate gives an approximate commercial match of the comparable normally formulated coating. The striking feature of the comparison is that in each instance an appreciable reduction in casein was made by the use of the new carbonate pigment.

Of course, in some of the comparisons the sheets containing the water-ground natural carbonate were found to be slightly lower in gloss, and less smooth by microscopical observation at about 50 magnifications. These tendencies are more pronounced the higher the proportion in the formula and correlate with the fact (Fig. 10 and Table II, Trials 334, 322, and 342) that the water-ground natural carbonate is essentially a pigment of lower gloss properties than coating clays or precipitated carbonates (of fine particle size).

However, by inspection of the results obtained in Trials 289 and 290 (Table II), and of the sheets themselves, it was indicated that in the presence of appreciable amounts of other pigments which have high gloss characteristics, such as clay or satin white, natural carbonate does not reduce the gloss and surface properties of coated paper any more than do precipitated carbonates. In every case in which the natural carbonate was used, the ink receptivity of the finished sheet was slightly lower. This correlates with the lower oil absorptive property of the pigment as shown in Table I. In some types of papers this property might be disadvantageous, while in other grades, such as are used for 4-color work, sheets to be lacquered or varnished, etc., the greater resistance might be desirable.

Summary of Properties

Pigment Dispersion

The natural carbonate disperses readily in water, and requires no dispersing agent. However, there is one precaution that should be taken. Much less water is required than by precipitated carbonates of fine particle size. For dispersing natural carbonate in water, the solids content of the mix should be about 60 to 65%. The water content of such a mix is lower than when other pigments, such as clays and precipitated carbonates, are used. If too much water is used, dispersion may not be satisfactory because of lack of proper rubbing and shearing action between the pigment particles.

Coating Color Solids and Viscosity

If a fairly good proportion of natural carbonate is used in a formula, it usually is possible to carry the solids content of the coating color from 5 to 10% higher than with other pigments with no increase in viscosity. This property should be of assistance in reducing drying costs and in some cases increasing coating machine production capacity.

Color

The water-ground natural carbonate, as used in this investigation, has a good color or brightness value, the pigment itself averaging about 94% in total reflectance compared with a pure white magnesium carbonate such as is used for standards in many colorimeters and reflectometers. It may be classed with the other bright pigments used in paper coating, such as satin white, blanc fixe, and precipitated calcium carbonate. It is definitely a whiter pigment than the regular and fine particle size china clays. Although slightly lower in brightness than a few of the precipitated carbonates, this product can be substituted for such carbonates without causing a drop in brightness of the paper because of the lower amount of casein required.

Casein Requirements

The amount of casein required to hold a pigment satisfactorily to a sheet of paper is determined by a complex set of factors including raw stock quality, type of pigment, color application method, coat weight, type of printing process, and other paper use requirements. Wax tests have been used in this investigation for obtaining an indication of casein requirements, but it should be understood that final conclusions cannot be drawn without actual commercial printing runs. However, it has been indicated that, depending on the formulas used, definite cost savings can be effected in many instances by reduction of casein requirements. The possible savings vary from grade to grade and are affected considerably by the prices of casein and competitive pigments. Estimates indicate that possible savings may vary from a few cents to as much as $40 per ton of dry coating raw materials.

Finish and Surface

Natural carbonate, when sized with an equal amount of casein, gives a much lower gloss and surface smoothness than either clay or fine particle size precipitated carbonates. However, when sized to the same wax test, natural and high-grade precipitated carbonates generally give about equal surface and gloss. In some instances, it will be found that the use of the former results in a slightly lower gloss or sheen, or a slightly rougher and poorer filled surface. It is important to reduce the proportion of casein used with natural carbonate until the sheets are sized equally, before making surface quality comparisons, as the change in surface characteristics with a moderate reduction in casein is sometimes quite pronounced. If the surface is not as smooth or glossy as desired after the above adjustment has been made, then it is necessary to increase slightly the relative amounts of higher gloss pigments such as clay or satin white. Such an adjustment usually involves only a slight proportional increase in amount of adhesive.

Ink Receptivity

With sheets sized to the same wax test, natural carbonate usually will give a slightly greater printing ink resistance than precipitated carbonates. This may be desirable for some grades of paper.

Suggested Applications

The following specific fields of application in the coated paper industry are suggested for water-ground natural carbonate:

1. As a partial or complete substitute for precipitated carbonate in many book paper coating formulas.
2. As a substitute for a portion (not all) of the satin white in high-gloss coatings.
3. Blended with high finish clays to give high-gloss coating of extremely low casein requirements.
4. Blended with regular coating clays to give low cost coated sheets of moderate or low gloss.
5. Blended with both regular coating clays and precipitated carbonates to give low cost coated sheets of moderate or low gloss.
6. In boxboard and flour sack coatings, etc., where color and hiding power are important, but printing requirements less severe than for book papers.
7. In specialty coatings such as for tags, box-wrap paper, etc.
8. For coated papers which are to be lacquered or varnished.

9. In coating mixtures (containing casein) applied at the paper machine, where high solids and low viscosity of the coating colors are important.
10. In multicolor printing jobs (blended with clays) where the high ink absorption of precipitated carbonates is undesirable.

Conclusions

Water-ground natural calcium carbonate blends easily with all the commonly used pigments, especially china clays, and is well adapted for inclusion in many of the formulations required to meet the various trade requirements. Wherever precipitated carbonates are now used in combination with coating clays, the full or partial substitution of the natural for these precipitation carbonates should, in many instances, result in definite cost saving with no impairment of sheet quality. With some types of coated paper, its use should give not only reduced costs, but improved products as well.

Acknowledgment

The authors wish to acknowledge the valuable assistance of Richard Penfield, Jr. and A. F. Blockman, of Cyanamid's Stamford Research Laboratories, in preparing and testing the experimentally coated papers; and R. B. Barnes and C. J. Burton who prepared the electron micrographs.

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Delaware Valley Discusses Lubrication

The Delaware Valley Section of the Technical Association of the Pulp and Paper Industry held its regular meeting at the Engineers Club, Philadelphia, April 4, 1941, with Edwin J. Albert presiding, with over 60 present. Following the dinner, E. N. Poor reported on the financial status of the Section, and the chairman urged all section members to send in their 1941 dues promptly.

The chairman announced the appointment of a committee to make arrangements for the annual golf-dinner-dance meeting in June.

Lubrication Fundamentals

The feature of the program was a sound motion picture entitled The Inside Story produced by the Socony-Vacuum Oil Company of New York and presented by T. E. Dial with the assistance of Messrs. Davenport and Jones of the company.

The picture reveals the part played by lubrication in reducing the waste caused by friction. By means of animation and actual photography, the picture shows the fundamentals on which correct lubrication is based.

A tremendous development in all types of machines has occurred practically within the present generation and has been accompanied by increases in pressures and temperatures. Mr. Dial pointed out that proper body, chemical stability, separating ability, and film are necessary considerations for correct lubricants. High speed, low temperatures require low-body oils; slow speed, high temperatures require heavy-body lubricants.

The picture showed what happened when gear teeth slide and roll over one another while transmitting power. It showed the important part the oil film plays in helping to carry the load transmitted and in decreasing the unit pressure by widening the contact area. The movie showed how a shaft, when rotating in its bearings, forms an oil wedge; how great pressure within the wedge lifts and supports the rotating shaft so that there is no metal to metal contact.

The showing of the movie was followed by a lengthy discussion of lubricants, problems in the mills, etc.

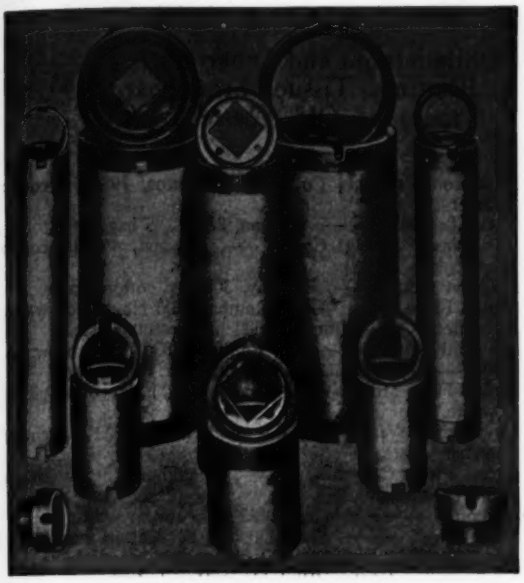
Those in Attendance

Among those present were: Edw. J. Albert, J. R. Atwater, Wm. Budell, A. L. M. Bixler, S. W. Blanchard, Alan R. Boyd, G. S. Brickett, S. G. Briscoe, Theodore M. Chemerys, C. M. Connor, A. M. Cooper, F. B. Davenport, J. D. Davis, T. E. Dial, Paul Dieffenderfer, R. H. Dillinger, Paul Easton, H. J. Farra, George A. Farrah, J. D. Gercke, Lois V. Hans, Wilbert H. Hannes, J. C. Harper, Jr., A. M. Hartley, C. W. Hoffman, H. F. Hoffmann, J. J. Lafferty, Charles Martin, George B. Martin, M. Craig Maxwell, F. J. McAndrews, Louis E. McGrath, Alex. McInnes, Jr., H. T. Jones, H. C. Merritt, Fred T. Morber, Lewis B. Miller, Walter B. Morehouse, Donald H. Newcomb, L. Newman, J. F. Nicholas, Walter P. Quinn, M. N. Reuben, S. V. Rogers, W. K. Schlotterbeck, Chas. A. Shubert, A. Shnabel, Edw. A. Shallcross, George M. Suydam, H. F. Volk, John W. Voller, Hugh Wallace, G. C. Walton, Vincent F. Waters, A. E. Waugh, and Edmund A. Yerger.

Oswego Falls Corp. Gets Power Plant

[FROM OUR REGULAR CORRESPONDENT]

FULTON, N. Y., March 20, 1941—Announcement is made that two power plants near the upper dam here operated under lease by the Central New York Power Corporation for several years will revert to the Oswego Falls Corporation for operation on March 31. The power plants are located on opposite sides of the Oswego River. An official of the Oswego Falls Corporation stated that the paper company would continue to operate both stations, consuming some of the power for manufacturing plants and selling the surplus to the lighting concern. A power station formerly owned by the American Woolen Company was acquired some time ago.



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Effective September 30, 1939, under Treasury Decision 49,970, all publications ,exchanges and trade associations, were denied access to import manifests at the New York Customs House. The Paper Trade Journal and other interested parties have vigorously protested this ruling, and as soon as the order of the Treasury Department is modified or rescinded, full publication of all manifests will be resumed in these columns. In the interim, the Paper Trade Journal is making every possible effort to gather all available information from manifests, at various outside sources.

NEW YORK IMPORTS

WEEK ENDING APRIL 5, 1941

SUMMARY

Wall paper .....1 cs.
Printing paper.....27 cs.
Filter paper.....28 cs.
Drawing paper.....15 cs.
Dacalcomania paper.....101 cs.
Photo paper.....35 cs.
Tissue paper.....55 cs.
Tracing cloth.....10 cs.
Miscellaneous paper.....113 cs.

WALL PAPER

——, ——, Liverpool, 1 cs.

PRINTING PAPER

Oxford University Press, ——, Liverpool, 27 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., ——, Liverpool, 28 cs.

DRAWING PAPER

H. Reeve Angel & Co., Inc., ——, Liverpool, 15 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., ——, Liverpool, 43 cs. (duplex).
——, ——, Liverpool, 4 cs.
B. F. Drakenfeld & Co., ——, Liverpool, 53 cs. (duplex).
——, ——, Liverpool, 1 cs.

PHOTO PAPER

Medo Photo Supply Co., ——, Liverpool, 4 cs.
——, ——, Liverpool, 27 cs.
——, ——, Liverpool, 4 cs.

TISSUE PAPER

F. C. Strype, ——, Liverpool, 6 cs.
——, ——, Yokohama, 2 cs.
Pongees Corp., ——, Yokohama, 47 cs.

TRACING CLOTH

——, ——, Liverpool, 10 cs.

MISCELLANEOUS PAPER

——, ——, Yokohama, 9 cs.
Corn Exchange Bank Trust Co., ——, Kobe, 12 cs.
Japan Paper Co., ——, Kobe, 21 cs.
H. Reeve Angel & Co., Inc., ——, Yokohama, 23 cs.
Japan Paper Co., ——, Yokohama, 48 cs.

RAGS, BAGGINGS, ETC.

West Texas Cottonoil Co., ——, Santos, 459 bls. cotton linters.
Williamson Products Co., ——, Santos, 798 bls. cotton linters.
J. Levy & Sons, ——, Havana, 22 bls., 5 bags rags.
Atlas Waste Manfg. Co., ——, Havana, 46 bls. cotton sweepings.
W. Intner Co., ——, Bombay, 300 bls. cotton waste.
Camden Fibre Mills, ——, Bombay, 200 bls. cotton waste.
C. Comiter, ——, Bombay, 300 bls. cotton waste.
Cohn Hall Marx Co., ——, Bombay, 200 bls. cotton waste.
——, ——, Liverpool, 151 bls. rags.
Camden Fibre Mills, ——, Shanghai, 100 bls. cotton picker waste.
New England Waste Co., ——, Shanghai, 200 bls. cotton picker waste.
Empire Fibre Co., Inc., ——, Shanghai, 50 bls. cotton picker waste.
C. Comiter, ——, Shanghai, 350 bls. cotton waste.
E. C. Andres, ——, Shanghai, 200 bls. cotton waste.
——, ——, Liverpool, 130 bls. rags.
——, ——, Santos, 9,971 bls. cotton linters.
West Texas Cottonoil Co., ——, Santos, 1,880 bls. cotton linters.
Williamson Products Co., ——, Santos, 52 bls. cotton picker waste.
Hercules Powder Co., ——, Santos, 473 bls. cotton linters.
New England Waste Co., ——, Buenos Aires, 172 bls. cotton linters, 58 bls. cotton picker waste.

GLUE STOCK, ETC.

Chase National Bank, ——, Buenos Aires, 203 bls. glue stock.
Manufacturers Trust Co., ——, Buenos Aires, 53 bls. glue stock.
——, ——, Santos, 2,240 bags glue bones.

CASEIN

American British Chemical Supplies, ——, Buenos Aires, 1,917 bags.

BOSTON IMPORTS

WEEK ENDING APRIL 5, 1941

Chemical Bank Trust Co., ——, Shanghai, 200 bls. cotton waste.
——, ——, Yokohama, 13 cs. paper.
E. C. Andres, ——, Shanghai, 305 bls. cotton waste.
Empire Fibre Co., Inc., ——, Shanghai, 150 bls. cotton waste.
E. J. Keller Co., Inc., ——, Kobe, 200 bls. bagging waste.

PHILADELPHIA IMPORTS

WEEK ENDING APRIL 5, 1941

National City Bank, ——, Buenos Aires, 605 bags casein.
——, ——, Buenos Aires, 2,434 bags casein.
Camden Fibre Mills, ——, Shanghai, 200 bls. cotton waste.

BALTIMORE IMPORTS

WEEK ENDING APRIL 5, 1941

Seldner Corp., ——, Shanghai, 100 bls. cotton waste.

LOS ANGELES IMPORTS

WEEK ENDING APRIL 5, 1941

——, ——, Shanghai, 100 bls. cotton waste, 680 bls. rags.
——, ——, Osaka, 3 cs. tissue paper.
——, ——, Shizuoka, 1 cs. aluminum foil paper.
——, ——, Sao Paulo, 206 bls. cotton linters.
——, ——, Kobe, 17 cs. tissue paper, 40 cs. transparent paper.

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New York Paper and Pulp Market Review

Pulp Market Strong With Production of Many Mills Contracted For Current Year—Paper Market Active With Orders For Kraft Increasing—Rope and Bagging Strong—Paper Stock Prices Firm.

Office of the PAPER TRADE JOURNAL,
Wednesday, April 9, 1941.

An active paper market, with the trend in demand upward for many lines of paper and paper products, is indicated in reports received from many manufacturers' representatives, jobbers, and general paper merchants this week.

The index of general business activity for the week ended March 29 rose to 124.1%, from 122.1% for the previous week, compared with 88.9% for the corresponding week last year. Paper board production advanced 4.3% over the preceding weekly period.

Paper production for the week ended March 29 was estimated at 94.0%, compared with 82.6% for 1940, with 82.8% for 1939, with 68.5% for 1938, and with 91.1% for the corresponding week for 1937.

Paper board production for the week ended March 29 was 84.0%, compared with 70.0% for 1940, with 73.0% for 1939, with 62.0% for 1938, and with 88.0% for the corresponding week for 1937.

A strong paper market with sales volume at a high level is quite generally reflected in the trade reports this week. The paper industry is among the many industries favored with bright prospects for the current year. While concern has been expressed relating to the supply of some grades of chemical pulp, particularly unbleached sulphite, the outlook for the whole industry is the best in years. The price situation continues, of course, uncertain but this is applicable to most other industries and products. The creation of a gigantic new industry in rearmament is steadily advancing general business activity and higher prices appear inevitable, although Government controlling measures may be adequate to keep prices from soaring.

Many paper lines are in active demand this week, with more inquiries indicating a continued upward trend. The demand for kraft paper is sharply upward and rising substantially above productive capacity. The paper board market is also strong, with the prospect for a record-breaking increase in the output of container board.

Paper prices are firm and no important changes from prevailing representative market quotations has been reported at this date.

Chemical Pulp

The pulp market is strong, with reports from many quarters of the trade indicating production of many mills is sold for the year. The demand for all grades of chemical pulp is reported in many quarters of the trade as well above expectations, and the current "tight" situation in chemical pulp was not expected to occur until June. A $5 ton advance in southern kraft pulp, on contract, has been reported but no important change from prevailing representative contract quotations has been reported at this date, excepting on the higher grade of news, which is currently quoted at from $58 to $64.25 per ton.

No important change in mechanical pulp has been reported this week. This market is easy, with some quarters of the trade reporting a growing demand for pulping news (about 15% unbleached sulphite and mechanical pulp).

Rags

The rag market is quite active in some grades, with more demand for the medium and lower grades reported at this date. Roofing rags are strong and some price advances are reported this week. No. 1 roofing rags are currently quoted at from 1.35 to 1.40, and No. 2 roofing rags at from 1.05 to 1.10.

Old Rope and Bagging

Demand for old Manila rope continues active with this market strong, with some advances this week. Foreign and domestic Manila rope is currently quoted at from 5.50 to 5.75; light and heavy wool tares at from 2.50 to 2.75.

The bagging market is in a strong position, with an advance reported on No. 1 domestic gunny, currently quoted at from 3.00 to 3.25.

Old Waste Paper

The paper stock market is quite strong, with prices firm. While advances are expected in some quarters of the trade, no important change has occurred this week, excepting on solid flat book, currently quoted at from .90 to 1.00.

Twine

The twine market is active under a better demand for some grades. Prices are firm, with most quarters of the trade reserving the privilege of limiting quantities on imported fibers and advising that quotations are subject to change without notice.

Paper Lectures at M. I. T.

William Bond Wheelwright will give two lectures on Book Paper April 8 and 15, in a course on "The Arts of the Book." Talks on hand-made paper have already been given by Dard Hunter, Curator of the Paper Museum at M.I.T.

This course which is well attended, aims to give a general idea of printing in relation to book manufacture. The course is under the direction of Professor Henry L. Seaver. It is an elective half-course which was offered for the first time in 1940, but is proving quite popular.

The Massachusetts Institute of Technology is well equipped for this work, having excellent facilities for stereopticon slide exhibits and motion picture demonstrations of printing and papermaking. It is especially fortunate in having the Dard Hunter Paper Museum in Rogers Hall where in addition to an amazing exhibit of hand made papers, there is a miniature beating engine, and actual papermaking equipment for making paper by hand, which came from an English mill. Mr. Hunter also has a hand press and the equipment for making type.

The course is not intended to be technical so much as to impart an understanding of "The Arts of the Book," and an appreciation of what constitutes good book making. Several librarians have taken the course who are not regular students.

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17 BATTERY PLACE
NEW YORK CITY

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, April 9, 1941.

BLANC FIXE—Prices on blanc fixe are firm and unchanged and conform to prevailing market levels. The pulp is currently quoted at $35 per ton, in barrels, at works; the powder is currently quoted at $50 per ton, f.o.b., works. Demand reported moderate for the week.

BLEACHING POWDER—Quotations on bleaching powder are firm. Shipments reported steady for the week. Bleaching powder is currently quoted at $2 per 100 pounds, in drums, at works.

CASEIN—Prices on casein are firm, with prices unchanged for the current week. Standard domestic casein, 20-30 mesh, is currently quoted at 12½ cents per pound; 80-100 mesh, at 13 cents per pound. All prices in bags, car lots. Argentina casein, 20-30 mesh, is currently offered at 12½ cents per pound. No quotations on French casein.

CAUSTIC SODA—Quotations on caustic soda are firm and continue unchanged at prevailing market prices. Demand reported good. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Prices on china clay are firm and conform to prevailing market levels. Demand reported moderate at this date. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay at from $12 to $22 per ton, at mines. Imported clay is currently offered at from $13 to $25 per ton, ship side.

CHLORINE—Quotations on chlorine are firm and unchanged. Market firm. Demand reported active for the current week. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported firm for the week with prices higher on some grades. "G" gum rosin is currently quoted at $1.85 per 100 pounds, in barrels, Savannah "FF" wood rosin is currently quoted at $1.82 per 100 pounds, in barrels, New York. Seventy per cent gum rosin size is quoted at $2.54 per 100 pounds, f.o.b., works.

SALT CAKE—Prices on salt cake are firm and nominal. Demand good. Domestic salt cake is currently quoted at $17 per ton, in bulk; chrome cake at $16 per ton. All prices in car lots, f.o.b., shipping point. The quotation of $16.50 per ton on imported salt cake is nominal.

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market levels. Demand reported good for the week. Prices on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch are moderately firm and continue unchanged for the current week. Pearl is currently quoted at $2.90 per 100 pounds; powdered starch at $3 per 100 pounds. All prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Demand reported good for the current week. The commercial grades are currently quoted at $1.15; iron free at $1.60 per 100 pounds. All prices in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and conform to prevailing market levels. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $19 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $15 to $21 per ton, at mines. No quotations on imported talc.

MARKET QUOTATIONS

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	"	—
Kraft—per cwt.—Delivered Zone A			
Northern, Extra Quality	$5.25	@	$5.75
Superstandard	4.87½	"	5.25
Northern Standard Wrapping	4.37½	"	4.62½
Standard Wrapping	4.25	"	—
Tissues—Per Ream—Carlots			
White No. 1	.97½	"	—
White No. 1 M. G.	.95	"	—
White No. 1½	.80	"	—
White No. 2	.75	"	—
Anti-Tarnish M. G.	.80	"	—
Colored	.85	"	—
Kraft	.87½	"	—
Manila	.77½	"	—
Unbl. Toilet, 1 M.	3.75	"	—
Bleached Toilet	5.26	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.10	"	—
Bleached, Jr.	3.60	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	8.25	@	10.25
No. 1 Manila Wrapping, 35 lb.	5.25	"	—
No. 2 Manila Wrapping, 35 lb.	5.00	"	—
Boards, per ton—			
News	42.50	@	—
Chip	40.00	"	—
Sgl. Mla. Ll. Chip	55.00	"	—
White Pat. Coated	70.00	"	—
Kraft Liners	55.00	"	—
Binders Boards	73.00	"	80.00

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items.

Delivered in Zone 1:

	Bonds		Ledgers
100% Rag Ext. No. 1	$39.10@$46.00		$40.25@$47.25
100% Rag	31.05 " 36.50		32.20 " 37.75
85% Rag	.... "		29.90 " 35.00
75% Rag	23.60 " 27.75		24.75 " 29.00
65% Rag	.... "		21.65 " 26.25
50% Rag	17.55 " 21.50		18.70 " 22.75
25% Rag	14.65 " 17.75		15.80 " 19.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items.

Delivered in Zone 1:

	Bonds		Ledgers
No. 1	$9.35@$11.50		$11.55@$12.75
No. 2	8.50 " 10.25		9.65 " 11.75
No. 3	8.05 " 9.25		9.20 " 11.25
No. 4	7.70 " 9.50		8.90 " 10.75

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper.

Delivered in Zone 1:

No. 1 Glossy Coated	$11.90	@	$13.50
No. 2 Glossy Coated	10.35	"	11.75
No. 3 Glossy Coated	9.55	"	11.00
No. 4 Glossy Coated	9.15	"	10.50
No. 1 Antique (watermarked)	9.05	"	10.50
No. 2 Offset	8.40	"	9.75
A Grade E. F.	8.20	"	9.50
A Grade S. & S. C.	8.45	"	9.75
B Grade E. F.	7.65	"	8.75
B Grade S. & S. C.	7.90	"	9.00
C Grade E. F.	7.35	"	8.50
C Grade S. & S. C.	7.60	"	8.75
D Grade E. F.	7.10	"	8.25
D Grade S. & S. C.	7.35	"	8.50

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—	
Moist	No prices
Dry	No prices

(Delivered)

No. 1 Domestic and Canadian	40.00	@42.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	3.72½	@	3.87½
Prime Qualities—			
Easy-Bleaching Sulphite	3.17½	"	3.75
Strong Unbleached Sulphite	3.17½	"	3.75
News Grade, delivered			
Unbleached Sulphite	58.00	"	64.25

(On Dock, Atlantic Ports)

Kraft Bleached	4.12½	"	—
Kraft Light & Strong	3.50	"	3.90
Kraft No. 1	3.40	"	3.80

(F. o. b. Pulp Mill)

Kraft Domestic and Canadian	2.75	"	3.37½

(Delivered)

Soda Bleached	3.30	"	—

Add 60 cents per short ton, dock charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1.	6.12½	@	6.37½
Silesias No 1	4.50	"	4.65
New Unbleached	6.12½	"	6.37½
Blue Overall	4.15	"	4.50
Fancy	3.25	"	3.50
Washables	2.00	"	2.15
Mixed Khaki Cuttings	2.75	"	3.00
O. D. Khaki Cuttings	3.00	"	3.15

Old Rags

White, No. 1—			
Repacked	3.50	"	3.65
Miscellaneous	2.75	"	3.00
White, No. 2—			
Repacked	2.50	"	2.75
Miscellaneous	2.00	"	2.25
Thirds and Blues—			
Repacked	1.50	"	1.65
Miscellaneous	1.10	"	1.25
Roofing Rags—			
No. 1	1.35	"	1.40
No. 2	1.05	"	1.10
No. 3 (bagging)	.90	"	1.00
No. 4	.60	"	.65
No. 5A	.60	"	.65

Foreign Rags

All prices nominal.

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—

STOP GUESSING WEIGHTS AND THICKNESS

POCKET PAPER SCALE
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Söderhamn, Sweden
CELLULOSEFABRIKS A.-G.
Bratislava, Czecho-Slovakei
SVANÖ AKTIEBOLAG
Svanö, Sweden

No. 4 White Linens.	2.25	@	3.25
No. 1 White Cotton.	4.25	"	4.75
No. 2 White Cotton.	3.25	"	3.75
No. 3 White Cotton.	2.50	"	3.00
No. 4 White Cotton.	1.90	"	2.20
Extra Light Prints..	2.00	"	2.40
Ord. Light Prints...	1.75	"	2.15
Med. Light Prints...	1.55	"	1.95
Dutch Blue Cottons.	2.25	"	2.50
French Blue Linens.	3.00	"	—
Checks and Blues...	2.00	"	—
Linsey Garments....	1.90	"	2.00
Dark Cottons.....	1.50	"	1.60
Old Shopperies.....	1.30	"	1.45
New Shopperies.....	1.45	"	1.50
French Blues	2.25	"	2.50

Old Rope and Bagging

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	@	3.25
Wool Tares, light....	2.50	"	2.75
Wool Tares, heavy..	2.50	"	2.75
Bright Bagging.....	2.50	"	2.75
Manila Rope—			
Foreign	5.50	"	5.75
Domestic	5.50	"	5.75
Jute Threads.....	2.75	"	3.00
Sisal Strings	2.10	"	2.35
Mixed Strings.....	1.10	"	1.20

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	3.10	@	3.25
Ordinary Hard White No. 1....	2.25	"	2.50
Soft White No. 1..	1.80	"	1.90
Soft White Extra..	2.50	"	2.60
Flat Stock—			
Stitchless	1.10	"	1.25
Overissue Mag.....	.90	"	1.00
Solid Flat Book....	.90	"	1.00
Crumbled No. 1...	.70	"	.75
Ledger White Stock.	1.60	"	1.70
Ledger Stock Colored	1.20	"	1.30
Manila—			
New Env. Cut....	1.70	"	1.80
New Cuttings.....	1.30	"	1.40
Old Kraft Machine Compressed bales..	1.40	"	1.50
News—			
No. 1 White News	1.75	"	1.90
Strictly Overissue .	.96	"	1.00
Strictly Folded....	.70	"	.75
Corrugated	.62½	"	.67½
No. 1 Mixed Paper..	.47½	"	.52½

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.19½	@	—
White Hemp	.19½	"	—
Fine Polished—			
Fine India.....	.22½	"	—
Unpolished—			
Box	.15¾	"	—
Paper Makers.....	.15½	"	—
Tube Rope.....	.16¾	"	—
Wall Paper.....	.19½	"	—
Wrapping	.19½	"	—
Soft Fiber Rope...	.17½	"	—
Cotton	.24	"	—
(Hard Fiber)			
Medium Java.....	.12	"	—
Mex. Sisal.....	.11	"	—
Manila	.25	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White No. 1.	.06¾	@	.07
New White No. 2.	.03½	"	.04
Light Silesias.....	—	"	.04½
Silesias, No. 1....	—	"	.04
Black Silesias, soft	—	"	.03
New Unbleached..	.06	"	.06¼
Washable Prints..	.02½	"	.03
Washable No. 1..	—	"	.01½
Blue Overall.....	.04	"	.04½
Cottons—According to grades—			
Washable shredding	—	"	.01½
Fancy Percales....	.03	"	.03½
New Black Soft...	.02½	"	.02¾
New Light Seconds	—	"	.04
New Dark Seconds	—	"	1.50
Khaki Cuttings—			
No. 1 O. D.....	.03	"	.03¼
No. 2 Mixed.....	.01¾	"	.02
Corduroy	.01¾	"	.01½
New Canvas.....	.04½	"	.05
New Black Mixed.	—	"	.02¼

Domestic Rags (Old)

White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.75	"	3.00
Thirds and Blues—			
Miscellaneous	1.35	"	1.50
Repacked	1.55	"	1.65
Black Stockings (Export)	3.50	"	4.00
Roofing Stock—			
Foreign No. 1....	Nominal		
Domestic No. 1...	1.30	"	1.35
Domestic No. 2...	1.10	"	1.15
Roofing Bagging..	1.00	"	1.05

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	Nominal		
Domestic	2.50	@	2.75
Manila Rope.....	—	"	5.50
Sisal Rope.....	2.00	"	2.25
Mixed Rope.....	.75	"	1.00
Scrap—			
No. 1.....	2.55	"	2.75
No. 2.....	—	"	1.50
Wool Tares, heavy..	3.75	"	4.00
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	2.50	"	3.00

Old Papers

(F. o. b. Phila.)

Shavings—			
Hard White Special	2.50	@	2.70
Hard White.....	2.35	"	2.40
No. 1 Soft White..	1.90	"	2.00
No. 2 White.....	1.70	"	1.85
No. 1 Mixed.....	.90	"	1.00
Solid Ledger Stock..	1.90	"	2.00
Ledger Stock, white.	1.50	"	1.60
Ledger Stock, colored	1.20	"	1.25
No. 1 Books, heavy..	.85	"	.90
Manila Cuttings.....	1.75	"	1.80
Print Manila.....	.60	"	.65
Container Manila....	.50	"	.55
Kraft Paper	1.40	"	1.45
No. 1 Mixed Paper..	.45	"	.50
Straw Board Chip...	.45	"	.50
Binders Board Chip..	.35	"	.40
Corrugated Board...	.60	"	.65
Overissue News.....	.70	"	.75
Old Newspapers.....	.60	"	.65

BOSTON

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.90	@	3.00
No. 1 Soft White	2.50	"	2.75
No. 2 Mixed.....	.90	"	1.00
Solid Ledger Books..	2.00	"	2.10
Overissue Ledger Stock	1.75	"	2.00
White Ledger Stocks	1.50	"	1.65
Mixed Ledgers	1.25	"	—
No. 1 Heavy Books	1.10	"	1.20
No. 1 Books, Light..	.75	"	.85
Crumpled Stitchless Book Stock	1.15	"	1.20
Manila Env. Cuttings	2.60	"	2.65
Manila Envelope Cuttings, extra quality	2.35	"	2.60
White Blank News..	1.70	"	1.80
No. 1 Kraft.....	1.25	"	1.40
Extra No. 1 Kraft..	1.75	"	—
Mixed Papers	.45	"	.47½
Print Manila	.60	"	.65
Container Manila....	.60	"	.70
Old Newspapers.....	.50	"	.55
Paper Wool Strings.	.95	"	1.10
Overissue News.....	.65	"	.70
Box Board Chips.....	.35	"	—
Corrugated boxes.....	.55	"	.60
Kraft corrugated boxes	1.10	"	—
New Kraft Corrugated Cuttings	1.75	"	—
Screening Wrappers.	.70	"	.80

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	3.00	@	—
Domestic	3.15	"	—
Sisal Rope.....	2.60	"	—
Mixed Rope	.85	"	1.00
Transmission Rope—			
Foreign	2.50	"	2.75
Domestic	2.75	"	2.90
Soft Jute Rope.....	3.50	"	3.75
Manila Rope—			
Foreign	5.25	"	5.35
Domestic	5.50	"	5.75
Jute Carpet Threads.	2.00	"	2.25
Bleachery Burlap....	4.00	"	4.50
Scrap Burlap—			
Foreign	3.00	"	—
Domestic	2.85	"	3.10
Scrap Sisal.....	2.50	"	2.60
Scrap Sisal for Shredding	2.50	"	2.60
Wool Tares—			
Foreign	(nominal)		
Domestic	2.85	"	3.00
Aust. Wool Pouches.	2.75	"	3.00
New Burlap Cuttings	3.75	"	4.00
Heavy baling bagging	2.75	"	3.00
Paper Mill Bagging..	1.75	"	2.00
No. 2 Bagging.....	.75	"	.80

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints.	—	@	.03
Fancy Percales....	.04	"	.04¼
New White No. 1.	.06¾	"	.07
New Light Flannelettes	.05	"	.05¼
Canton Flannel, Bleached	.0625	"	.0650
Underwear Cutters, Bleached	.06	"	.0625
Silesias No. 1.....	.05	"	—
New Black Silesias..	3.00	"	3.25
Red Cotton Cuttings	.04	"	.05
Soft Unbleached....	.06	"	.06¼
Blue Cheviots.....	.04¼	"	.04½
Fancy	.02	"	.02½
Washable	.02	"	.02½
Cottons—According to Grades—			
Blue Overalls.....	.04¼	"	.04¾
New Black, Soft..	.03	@	.03¼
Khaki Cuttings.....	.02¼	"	.03
O. D. Khaki.....	.02½	"	.03¼
Corduroy	.06¾	"	.07¼
New Canvas.....	.06¼	"	.07¼
B. V. D. Cuttings...	.06½	"	.06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	2.75	@	3.75
Miscellaneous	2.40	"	2.60
White No. 2—			
Repacked	1.90	"	2.00
Miscellaneous	2.00	"	2.25
Twos and Blues.....	2.00	"	2.25
Old Blue Overalls...	1.60	"	2.00
Thirds and Blues....	1.50	"	1.75
Miscellaneous	1.25	"	1.35
Black Stockings.....	3.50	"	4.00
Roofing Stock—			
No. 1.....	1.20	"	1.25
No. 2.....	.95	"	1.00
No. 3.....	.85	"	.95

Foreign Rags

(F. o. b. Boston)

Canvas	.04¼	@	—
Dark Cottons.....	(nominal)		
Dutch Blues.....	(nominal)		
New Checks and Blues	(nominal)		
Old Fustians.....	(nominal)		
Old Linsey Garments.	(nominal)		
New Silesias.....	(nominal)		

CHICAGO

Waste Paper

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope Cuttings ..	3.15	@	—
No. 1 Hard White	2.50	"	2.65
No. 1 Soft White.	2.00	"	2.20
Ledger and Writings	.85	"	.95
Solid Books.....	.83	"	—
Blanks	1.45	"	—
Krafts	1.40	@	1.50
New Kraft Cuts....	1.60	"	1.75
Overissue News.....	.60	"	—
Old Newspapers—			
No. 1 Folded News	.70	"	.80
No. 1 Mixed Paper	.45	"	—
Roofing Stocks—			
No. 1.....	.95	"	1.00
No. 2.....	.85	"	.90

Simplified Practice for Writing Papers

WASHINGTON, D. C., April 7, 1941 — Printed copies of Simplified Practice Recommendation R22-40, Paper, are now available, according to an announcement of the Division of Simplified Practice, Bureau of Standards. The revised recommendation establishes basic sheet sizes for bond and writing papers, rag content or sulphite; ledgers, rag content; ledgers, sulphite; loose-leaf ledgers, rag content or sulphite; machine-posting ledgers, rag content; book paper, uncoated, coated two sides, coated one side, and offset; index bristol; and cover paper.

Simplification of basic paper sheet sizes was first undertaken in 1923, when a general conference of the industry drafted a simplified list of sizes, which, in 1924, was promulgated as Simplified Practice Recommendation R22. The standing committee in charge reaffirmed the recommendation without change in 1927 and 1929, and revised it for the first time in 1933.

The current revision represents the results of studies of present requirements in the paper consuming trades, and differs from the previous edition in that the broad classes of papers have been subdivided in those cases where the sizes of papers of different substance or finish are not the same throughout the class. In addition, the scope of the program has been enlarged to cover loose-lead and machine-posting ledgers.

Canada Paper Profits Off

The Canada Paper Company for 1940—(Canadian currency) reports a net income of $263,085, against $302,347 for 1939.